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NURSERY HYGIENE

BY

BOYD BURNETT JOLL, M.B. LOND.

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International Health Exhibition, London, 1884.

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NURSERY HYGIENE.

A MANUAL FOR THE
INSTRUCTION OF THOSE IN CHARGE OF INFANTS
AND YOUNG CHILDREN
IN THE LAWS OF HEALTH.

BY

BOYD BURNETT JOLL, M.B. LOND.
LATE HOUSE PHYSICIAN AT UNIVERSITY COLLEGE HOSPITAL, ETC.

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PREFACE.

THIS little manual was chiefly penned for the perusal of the parents and guardians of infants and young children, trusting that some little information may be found in its pages for their edification and instruction.

There is nothing strikingly new in it, but merely the experience in matters hygienic of a few years' general practice amongst such classes of society as a provincial town affords.

There are scores of such books,—on "Advice to a Wife," "Hints to Mothers," &c.,—all more or less bearing on the subject of the rearing of young children, but not many on the special lines I have followed,—those of sanitary or preventive medicine.

Inasmuch as it is intended more especially for the laity, I have omitted as far as possible all strictly medical phraseology and technicalities, and have popularised it by explanations, where these have struck me as necessary. But, as it will inevitably fall into the hands of some of my professional brethren occasionally, I trust that even to them it will not appear flat, stale, and unprofitable.

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INTRODUCTION.

THE care of the young is a subject of everyday importance; one of which the sanitary reformer should never weary, however discouraging the results of his labour may seem; and one in which he should be eagerly supported by the mother, the nurse, and by those in immediate charge of young children.

The healthy rearing of infants has been for many years one of the most grave social and medical problems, and should become, day by day, a more and more anxious theme, till the present high rate of mortality among children is very appreciably diminished.

The Registrar-General tells us that the death-rate of young children is so great that of all the deaths annually recorded by him, over forty per cent., or nearly one-half, occur before the age of five years, and that nearly one-fifth of all children born die within twelve months of their birth.

With these serious facts before us, and in these enlightened days of museums of hygiene, of health exhibitions, and sanitary reform, little apology is needed for bringing forward my small contribution, in the shape of a manual more especially designed for the instruction of

those who have the management and care of infants and young children in matters concerning their general health and development.

There are many aspects of preventive medicine to which the profession as a whole has hardly attached sufficient importance, and this is, I think, one of the most important. When one considers the large number of serious and fatal diseases which spring from apparently trivial causes, and that such beginnings are in many instances preventible by strict attention to what are termed the laws of health, any attention to such laws or observance of such rules which "doctors" or teachers (this being the strict meaning of the word) are every day trying to impress upon their pupils or patients will more than repay those who take heed to the directions they have received from those to whom they profess to have given their confidence as medical advisers. Comparatively little has been done in the domain of sanitary reform in infancy, if we except vaccination and such general counsel as family doctors are in the habit of giving, in their occasional visits to the nursery, to arrest or prevent those little beginnings of states of ill-health to which many varieties of disease in after-years owe their origin.

It is truly difficult to believe that there is nothing to be done, or that something of importance has not been omitted, to prevent or arrest such fatal diseases in their early stages,—their "period of incubation,"—and thus to banish, or at least to palliate, the untold suffering and anxiety which these cause in our midst, day by day.

It is almost impossible to portray a more affecting and heartrending picture than the sick bed of a little child, struck down by a painful and lingering illness, only to terminate in death, telling his own tale far more eloquently than words can. But this becomes infinitely a more dis-

tressing scene if we suffer from the horrible consciousness that such sickness might have been prevented by more care and attention to those simple rules of health which nature, or the skilful interpreter of nature, has taught us.

The treatment of particular cases of disease in infancy and childhood forms the subject-matter of nearly one-half of the general practitioner's daily thought; but as yet no very definite efforts have been made for the improvement of the constitutional health of the masses, or for the prevention of the enormous fatality of the first few years of children's existence, by arresting the morbid processes of everyday life, or by destroying those disease-germs from which such processes are supposed to originate. Some fifty years ago a few leaders of the medical profession, awakened to a revived interest in the subject of the diseases of children, made it into what is termed a "specialty." Courses of lectures were delivered to students in the various schools, and a few books were written on the subject. Some stir was made, and the excitement of special interest was kept up for a short time, and then it was allowed to die a natural death, or, let us rather hope, to hybernate; but one very important result of the search in quest of the causes of mortality from infectious diseases was to impress upon the profession, and through them upon the public, the all-important value and necessity of one of the greatest measures of sanitary reform of this century,—that of "vaccination."

The condition, character, and life of the young child is but the outline—the forecast of the adult state, whether we regard it from a physical, mental, or moral standpoint; yet comparatively little is done for the systematic promotion of health and the prevention of disease among the infant population. This state of the child's existence is to some extent recognised later on in life, and finds its expression in

the policy of our national education, in the physical and intellectual training recommended, and in some measure enforced, by the Legislature.

But, for the most part, children live their young lives, tolerated, or it may be in many cases spoiled, by their natural protectors, and it is only when these discover or imagine that their *protégés* are seriously ill that the doctor's assistance is in any way sought after.

They argue, and to some extent correctly, that those that are whole need not a physician, but those that are sick, or persuade themselves that it is "only a cold" or something trivial. But how often do they overstep the pathway of safety, and tread on dangerous ground, through ignorance of the subtle and insidious nature of the commencement of children's maladies, and ask for the physician's advice too late, when the doors are closed upon those morbid germs, and the seeds of disease have already germinated, and infected the vital organs of the infant, so that what was fondly imagined to be "only a cold" or some slight ailment, has developed into the early stage of a dangerous inflammation or a specific fever, which may be beyond his power to arrest? Then it is that parents see the folly of their procrastination, and bitterly regret that no steps had been left untaken for the prevention of the disease, no precautions left untried for the arresting the growth of those insidious germs which prepared the way for their future sorrow. I think, therefore, something more than mere treatment of children's diseases is required at our hands, so as to give full expression to the laws of health which the science of hygiene teaches us; and far more would be learned about the prevention of disease if this phase of the child's development were more scientifically treated and more practically cared for by those of authority in such matters.

With these few preliminary remarks, it will be interesting to learn a little more about hygiene, as a science,—to inquire into its scope, its uses, what it has done for us in the past, and what we may look forward to as the outcome of its study in the future, more especially amongst our infant population.

CHAPTER I.

HYGIENE.

THE term "Hygiene," like most comprehensive names, has a large number of definitions. The word itself, derived from its Greek ancestor, means "health." It is commonly defined as the art or science of preserving health, or, as health means simply the absence of disease, hygiene also becomes the science of preventing disease. It is a very old science, and has certainly reached the respectable age of 2,000 years, for Hippocrates wrote on this subject. In his time, it was chiefly restricted to the effects of food and of exercise upon the body. These were considered the basis of hygiene. Many years afterwards the influence of air, water, and of soils became embodied; but in later days, it has become so identified with the science of physiology, and so complicated and extensive has become the domain of the domestic engineer and the knowledge of the chemist, that hygiene, which is necessarily affiliated with so many kindred arts and sciences, has become quite as comprehensive as the science now called "physiography," which embraces almost every branch of scientific research, from physics to geography, from geology to astronomy.

It would be almost impossible in this little manual to

touch, however lightly, upon every phase of this wide and comprehensive subject; nor is such my desire. I purpose to confine my remarks almost entirely to those portions of it which concern the physician, the young child, and its nurse.

The rules of health are conveniently arranged into three epochs or periods, viz.—those of growth (including infancy and youth); of maturity, when the body remains stationary as regards its physical development for many years; and of decay, when decrepitude and old age, degeneration and death commence in one or more parts of the system.

It is to the early portion of this first period, to the first few years of life, when the child is under the immediate supervision of its mother or its nurse, that I wish to limit myself, and to speak of such sanitary matters as may be instructive to parents and guardians, and which I have, for want of a better name, termed "Nursery Hygiene." "Prevention is better than cure" is a homely and well-known maxim, and not only is it better, but in many cases it is far easier than cure. It is a well-known fact, at least to medical men, that the diseases of infants and of young children are peculiarly insidious, and far more fatal than those of adults,—partly owing to the difficulty one has in getting any previous history or present symptoms from the little patient, and having to rely entirely upon such signs as are afforded by physical examination, and partly because the sympathies between the different organs are more extensive and more delicate than in adults, so much so, that in young children one organ rarely suffers alone, but the effects of local diseases frequently extend to the whole system before they have been detected by the nurse, and so disorder its working that it becomes an exceedingly difficult matter to fix upon the original seat of the mischief—the "*fons et origo mali.*" Nor is this all: we must remember that the life of the infant and young child is one of rapid

and increasing development, and that disease, if it be allowed to commence, not only interferes with the present, but may seriously interrupt the future healthy growth and development of the child.

How many adults are crippled or otherwise injured for life, in consequence of neglect of hygienic precautions and of careful attention to the laws of health during childhood? and how many infants are annually allowed to die,—as the result of ignorance of simple sanitary rules, which every mother or nurse ought to make it their duty to learn by heart,—from diseases which are preventible by a little more care and intelligent management during this early period of infant life. It has been conclusively proved by statistics, that care and attention bestowed on children in early life are rewarded by a low death-rate. In places where, from poverty, ignorance, or carelessness, or an unfortunate combination of these, children are poorly clad, badly fed, and generally neglected, the mortality may be, and usually is, enormous. Thus, not many years ago, Dr. Parkes found a street in the slums of Liverpool where the death-rate amongst young children before five years of age was 90 per cent.—*i.e.*, of 100 children born, only ten survived the fifth year of their existence.

There are periods of special danger in the life of the young child—those of the first and second dentition—when considerable changes and modifications take place in the organism of the child, when certain physiological disarrangements upset the due proportion of one part of the mechanism to the other. Disease is then unusually frequent and serious beyond what it is at other times, when even slight ailments require far more care and anxiety; and after these periods serious affections are comparatively less frequent in their occurrence, and much milder and less alarming in their character.

Such being the case, it behoves us as medical men to impress more urgently and solemnly such facts before parents and the natural guardians of young children; to instruct them in all such sanitary matters which belong to the domain of the nursery, so that ignorance, at least, shall not be adduced in explanation of defective hygiene and its necessary companion, a high death-rate.

On the other hand, the dutiful parent should not fail to do her part in carrying out any scheme for the improvement of the health of her children, and for the prevention of disease, which, once commenced, may, and too often does, run to a fatal termination.

Some reader may say I am overstating the case. Let me remind such of at least one lamentable fact, the truth of which I can vouchsafe, of the results of ignorance in such sanitary matters. A custom prevails in Yorkshire and Cornwall, to my certain knowledge, and I have heard of it in Lancashire and other places, where mothers have wilfully and deliberately exposed young children to the infection of scarlet-fever, whooping-cough, and other infectious diseases, under the impression (shall I say superstition?) that children must necessarily have such complaints once in their lifetime, and that it is better to get it over when they are young, or rather that they are better able to survive it in infancy or early childhood.

The mother is frequently actuated to such an ignorant and cruel practice by the supposition that such exposure, if the infectious case is a mild form of the disease, will cause the development of an equally mild attack, and hence the less severe forms were selected. There is, perhaps, a smattering of truth underlying the latter argument, but the whole principle is preposterous and mischievous, immoral and unscientific, and should be as punishable by law as is the inoculation with lymph from a case of small-pox.

It should be remembered, moreover, that it is by no means necessary for a child to have any infectious disease—that to prevent this is one of the chief aims of sanitary medicine. Also be it known, that the fact of a child having had one or more of the infectious diseases, as measles, scarlet-fever, &c., does not entirely prevent it from having a second attack of the same disease later on in life, although such repeated attacks are not so common. Another example of such gross ignorance (at least, we would hope so) has been lately authenticated in the medical papers, that of a lady whose little boy had recently recovered from scarlet-fever, noticing that he had developed a scurfiness of the head, took the child to a West-end hair-dresser to have the head thoroughly brushed by machinery, thus scattering one of the most powerful sources of infection in a wholesale manner.

Then, again, as regards diet in young children, although doctors differ somewhat in their ideas of bringing up children by hand, as the phrase goes, they are unanimous in their opinion that a large number of infant lives are annually sacrificed to the ignorance of mothers who cannot, or will not, give them the nourishment which nature usually supplies.

I used always to ask the mothers who brought their sickly infants to the out-patient department at hospital about the dieting of their little ones, and in the vast majority of cases the cause of such digestive disarrangements was prolonged suckling or giving it bread crumbs, baked flour, or some equally unsuitable food.

Sometimes, in cases of children under twelve months, the answer was, "Oh! we give the child the same food as we have ourselves!" and I remember once seeing a child seven or eight months old having a mid-day meal of pea-soup and plum-cake!

Indeed, so absurd and ignorant are the notions of some mothers, that the wonder is how their infants thrive at all; and one ceases to be surprised at the wholesale massacre of innocents to which I have already referred, given us on the high authority of one of the greatest pioneers of modern hygiene, whose work will remain for many years as a standard book of reference, although he has gone to his rest, but whose writings and whose life leave behind an everlasting epitaph. With regard to clothing, ventilation, and other equally important branches of the subject, no less widespread ignorance prevails; but, as I have to briefly speak of these *seriatim*, I will conclude this chapter with the graphic and classical words of Dr. Edmund Parkes, whom it is my privilege and pleasure to remember as a teacher:—"It is undoubtedly true that we can, even now, literally choose between health or disease; not, perhaps, always individually, for the sins of our fathers may be visited upon us, or the customs of our life and the chains of our civilisation and social customs may gall us, or even our fellow-men may deny us health, or the knowledge which leads to health. But, as a race, man holds his own destiny, and can choose between good and evil; and as time unrolls the scheme of the world, it is not too much to hope that the choice may be for good.

"In the scheme of Providence, it may not be meant that man shall be healthy. Diseases of mind and of body may be the cross he has to bear; or it may be the evil against which he has to struggle, and whose shackles he has finally to unloose. The last disease will disappear, we may believe, only when man is perfect; and as in the presence of the Saviour all disease was healed, so before perfect virtue sorrow and suffering shall fade away. Whether the world is ever to see such a consummation no man can say; but as ages roll on, hope does, in some measure,

grow. In the midst of all our weaknesses, and all our many errors, we are certainly gaining knowledge, and that knowledge tells us, in no doubtful terms, that the fate of man is in his own hands."

CHAPTER II.

THE NURSERY.

IN all houses where it can be so arranged, two rooms should be set apart for the exclusive use of the nurse and children. Amongst the well-to-do upper and middle classes, the day-nursery and the night-nursery are institutions that go without the saying.

With the working-classes, so called, it often becomes a question as to whether two rooms or less can be provided for the whole family; and unfortunately in too many cases a single room can only be provided for the husband, wife, and several children; or in not a few cases for two, three, or four entire families, each having a corner allotted. It remains to be seen what the present Commission to inquire into the habitations of the poor in our large cities will have to report concerning this overcrowding, and what means they will suggest for their improvement and better housing. But nowadays in most of the very poor districts day-nurseries exist for the management and care of young children, where those who have their accommodation so limited at home, and those who have their daily bread to earn, can send their little ones to

be taken care of during the day-time, with a certain amount of security and for a trifling sum.

Such institutions are a great boon to the thrifty and industrious housewife, and are, I believe, attended with the happiest results, in keeping young children out of the dangers incidental to the alternative of being turned out into the streets, frequently shoeless and hatless, or perhaps to the still more risky contingency of slow poisoning from the pent-up air and stifling atmospheres of their homes.

These day-nurseries and *crêches* should be provided in every populous district: they are of incalculable value, an untold boon to many thousands of our fellow-creatures, and afford ample scope for ladies who have time on their hands, or for such as are in the habit of district visiting, or otherwise leading a useful and philanthropic life.

This is one of the many fields of labour in which women may safely engage, a work which they may carry out with perfect confidence that they are rendering good, useful, and charitable services in their own proper sphere of life.

Such institutions are liable to abuse—indeed, what charity is not? but it is a work in which the promoters will gladly receive the support and advice of the medical profession in general, as to precautions against the spread of infectious disease, and other matters affecting the public health; and the local doctor or medical officer of health will, doubtless, in all cases give his occasional gratuitous advice in all matters connected with the sanitary arrangements of this or any kindred charitable scheme. Indeed, it is advisable, if not necessary, that all such institutions should be under the immediate supervision and regulation of the local sanitary authority, in order to prevent any abuses to which enterprises of this kind are so peculiarly liable. I do not include so-called baby-farms in this category, but shall have a word or two to say concerning them shortly.

With this pardonable digression, let me return to the subject of the Nursery amongst the wealthier classes. In this variable and so-called "temperate" climate, children habitually spend about nine-tenths of their time in the house, so that it becomes a necessity for their proper growth and development that their rooms shall be healthy, clean, and bright, and that in all cases where it is at all feasible two rooms should be set apart for their special use, one for sleeping and one for meals, play, and other uses. Generally an unoccupied bedroom, adjoining the night-nursery, is allotted for the latter purposes, for sufficiently obvious reasons. It will be more convenient to speak of these separately.

With regard to the night-nursery, let it be kept in mind that children usually spend at least one-half of their existence in such rooms, so that we must let them have one sufficiently large, and so have it properly ventilated.

An adult should have about 800 cubic feet of well-ventilated space for a sleeping apartment, and an infant should be allowed at least one-half this amount, and a proportionate quantity for each child according to its size and age. This amount of cubic space, which should be regarded as the minimum quantity permissible, can be easily calculated by multiplying the measurements in feet of the length and breadth and height of the room, and making due allowances for all projections into the room, cupboards, and large articles of furniture.*

In every dwelling-room there must of necessity be some impurity of air, for every act of breathing vitiates a certain portion, which takes time for its removal and for its re-

* It is not necessary that the rooms shall be very lofty, indeed any height above 12 feet is practically useless, and should not be allowed for as available cubic space.

placement by fresh air from without. It may be fairly assumed that the quantity of air supplied to a dwelling-room should be sufficient to remove all sensible impurity, so that a person entering the room from the external air should perceive no unpleasant odour or manifest stuffiness in point of freshness. It is related that an eccentric doctor, practising in the West of England, when asked for his opinion as to treatment, on more than one occasion poked his walking-stick through the window by way of a forcible preliminary hint that more pure air was necessary in the room.

The nose is by no means an unreliable guide as to the purity and wholesomeness of the air of a dwelling-room. Many persons have such a morbid dread of cold air and draughts, that they shut up every possible communication with the external air, by placing sand-bags on the tops of window-sashes, boarding up the fire-places, and even papering over ventilators, so as to make the room "snug," as they term such a condition.

Cold is decidedly objectionable, especially in a night-nursery, and draughts are not to be tolerated, but neither need exist with proper care; but the slow poison of the unventilated "snug" room is a far greater evil than either. If the weather is cold, nature and common sense suggest a fire, and by its means we have at the same time, perhaps, the most efficient means of natural ventilation that can be procured, a powerful current of air is kept constantly flowing up the chimney, which can be replaced by fresh air from without, or from an adjoining room, causing no perceptible draught.

A few years ago Dr. Lawson Tait suggested a plan of supplying purified and warmed air to such rooms, which may be of use as a substitute for the fire and chimney method. The method consists of a "Tobin's Tube," now

sufficiently well known, with a cap fitted to it, in which is placed some material for filtering the air. An atmospheric gas-burner is in connexion with the bottom of the tube, the heat from which serves the purpose of accelerating the current of air, and at the same time warming it. This method is cheap, simple, and effectual, though I fail to see any very great improvement on the older and more common plan, of fire-place and chimney, notwithstanding the epithet of "barbarous" that he uses for such a simple procedure. I think that any room which requires artificial ventilation by mechanical appliances should not be selected for a night-nursery.

Next to the fire-place, the windows are the most important adjuncts for keeping up and regulating the supply of fresh air. Care should therefore be taken that these are made to open both at the top as well as at the bottom, a simple fact of which the importance is, I fancy, not usually recognised. If the room is small, or exhibits the least tendency to stuffiness, the upper sash may be kept down for the space of about an inch, save in very cold weather, without causing any perceptible draught, or the following device is a better one for the utilisation of the window as a means of natural ventilation. Get a joiner to make a board of the same length as the breadth of the window-sash, and about an inch thick and two or three inches in breadth, so that this board will accurately fit into the groove for the sash; then, by raising the window and placing the board into the open space thus caused, and by closing the window firmly upon this board, we practically exclude the air entering the room beneath the lower window-sash, while we allow it to enter freely in an upward current between the upper and lower sash. This will not cause any draught, but will prove a very effectual, simple, and convenient method of airing the room, and one which

nobody need be afraid of adopting even in moderately cold weather. Apart from the consideration of the purity of the air, a large room has manifest advantages over a small one, but it should admit of its being easily kept warm, and at an equable temperature, which should be kept as nearly as possible between 60 and 65 degrees Fahr. As a general rule, it is advantageous, as well as most convenient, to have such a sleeping-room upstairs, for we find the atmosphere improves the higher we ascend, this more especially in towns, and the ground-floor is more liable to become damp. It is generally necessary, or at any rate advisable, to have a light burning all night in a nursery where young children are sleeping for sufficiently obvious reasons. Gas, though most commonly used and so convenient for many purposes, is not the most hygienic, inasmuch as it destroys a larger proportion of air in burning, and gives off more impurity into the chamber than candles or night-lights. Lamps in which paraffin oil is burnt are generally disagreeable, from the smell they give off, and are sources of danger from becoming upset, so should be discarded.

The light is generally made use of for purposes of warming the milk of infants at night, and to this end the porcelain apparatus with a night-light underneath is perhaps the most suitable and convenient.

Is it advisable to have growing plants in sleeping-rooms? A great deal of unnecessary argument has been written for and against such a practice. Botanical science teaches us that plants, in their function of respiration, reverse the procedure of animals, inasmuch as they take in the carbonic acid gas and return the pure oxygen to the air; and the advocates for their presence plead that they act as tests for the purity of the air of the apartment, seeing that plants will not thrive in a stuffy or ill-ventilated room. During the night, or rather in the absence of light, plants reverse this oxygen-

producing function, and give off some deleterious gases; but the effect of one or two small plants on the purity of the air of a well-ventilated chamber is practically *nil.*

A word or two about the floor. It is unnecessary and inadvisable to have this carpeted all over, at any rate in such a manner that it cannot be very easily and conveniently taken up; so that it should not be securely nailed down, as is too commonly done. The carpet of a bedroom, and especially of a night-nursery, should be frequently removed, so as to be beaten thoroughly and cleaned. Such articles are highly absorbent, readily take up all kinds of filth and impurity—to which they are in this case peculiarly liable, hence the necessity for their being taken up much oftener than those in other rooms. For these reasons it is far better that strips of carpet or good druggeting should be placed where they are required, in order that they may be cleansed without much trouble; for if their removal causes the expenditure of much time and labour it becomes a matter of everyday experience that dirt will be allowed to accumulate, and this harbouring of filth is exceedingly unhealthy and cannot too strongly be deprecated. The floors, moreover, need more washing than the customary spring and autumn cleaning, and this should be attended to each time the carpets are removed—once a week if practicable.

Then it should be remembered that all superfluous drapery, in the shape of curtains, bed-hangings, and suchlike, are alike harbingers of all kinds of animal exhalations, dust, and other impurities, and should be discarded as much as possible. The theory of the useful should be more practised in preference to that of the merely artistic or ornamental. Organic impurities abound in the air of sleeping apartments, and find a convenient nidus in the effective but often useless devices of the upholsterer, and these become

at times very fruitful mediums of these subtle germs of infectious fevers.

The functions of bed-curtains are presumably those of keeping away draughts and of shading redundant light; but in too many cases their purpose is really and merely decorative, for draughts should not be allowed to exist, and light, if excessive, is more effectually screened by other simpler devices.

The plain iron or brass French bedstead, guiltless of drapery or other ornament, is far more healthy, and is coming more and more into general use.

Feather beds also are an expensive, unsanitary, and unnecessary luxury. The bed, if not well shaken, is apt to become lumpy and uncomfortable. The feathers are highly absorbent of organic impurity, they are very difficult to clean, and are otherwise inadvisable for young children. The various modern improvements, in the shape of spring-mattresses, are vastly superior in all respects. The mattress and bedding of a child should always be well protected by a mackintosh or some waterproof material, for young children too frequently are allowed to form a habit of wetting them during sleep, a custom which should not be allowed, for little ones can easily in most cases be broken of the habit by being taken out of bed at intervals, and by being limited as to their amount of drink at night.

The coverings of the bed should be warm and light, and care must be taken that the child is at all times making proper use of such coverings by being covered up, for young children very frequently throw or kick off the bed-clothes, and so remain asleep for many hours half naked, and the careless nurse wonders how the child could have caught such a cold. Children who are at all feverish, and notably those who are predisposed to, or suffering from, rickets, get very hot at night, and soon break out into a

perspiration; but Nature's method of cooling the skin does not satisfy them; they almost invariably throw off the bed-clothes, unconsciously it may be, but certainly greatly increase thereby the risks attendant upon the sudden impression of the alteration of temperature. This change so reduces their feeble vital energies, that nature, ever kind, stimulates them, it may be by a fit of sneezing, or perhaps more commonly a fit of shivering, which rouses them, and helps in some measure to shake off worse consequences. This sudden alteration of temperature is in most cases the *rationale*, the method of catching cold, and its causes should be ever kept in mind and prevented.

Nurses should not be permitted to take babies into bed with them and sleep all night with them as a general rule, lest they "overlay" them, as the fatal cause of smothering them is politely termed. It is a lamentable fact that about 500 children are in this way annually suffocated in London alone It is true that such cases happen among the poorer classes, and are to some extent unavoidable, but the danger is always there, and the practice should be condemned as an unsafe procedure. More than half these cases happen on a Saturday night, when the working classes receive their weekly wages, and enjoy their weekly dram of liquor, and perhaps give it to their "weakly" offspring, either directly or through their lacteal organs, thus causing undue somnolence to both, and hence the coroner's inquest.

The bassinette should be placed close alongside the bed, so that the nurse may attend to the infant's wants without incurring the grave risk of smothering her charge.

The nurse should not fail to throw the bedroom windows open widely after the children have left the room, so as to allow a free current of air to blow through it. Pure air is Nature's method of disinfection, and the exposure of

the room, as well as the bed-clothes, which should be turned back for the purpose, is necessary for their proper airing. The bed-linen must be occasionally aired in a different manner, *i.e.*, after it has come from the wash. Damp sheets are too often the cause of disease to be left unnoticed, and the drying of blankets and sheets is by no means as simple and easy a matter as is commonly supposed. It is generally thought to be properly done when each article has been exposed to the fire over the back of a chair for a few minutes. It should, however, be remembered that steam which is driven off by heat from one portion is very readily absorbed by or deposited upon another,—hence the necessity for frequently changing its position, so as to completely drive out all moisture, which so tenaciously clings to such articles, in order that it may be thoroughly aired.

I have by no means exhausted my store-house of suggestions for these little details of nursery management; but as I have a little more to say about the day-nursery, I must hurry on, lest I exhaust the patience of the reader, on a subject which to some persons appears trivial; but the life of a child is made up of little things, of trifling incidents, and anything which pertains to the domain of health, anything which tends towards the prevention of infantile disease and mortality, is sufficient excuse for reminding the nurse or the mother of any little item which may be the means of furthering this end.

The day-nursery should in all cases be separate from the sleeping-room, when the size of the house will admit of it. It should always be in a situation where an abundant supply of pure air is obtainable, and the windows sufficiently large to admit plenty of light, for children, like plants, when deprived of its agency become pale and sickly. That a *large* room is preferable to a small one goes without saying,

not merely, however, from the greater purity of the air obtainable, but from the comparatively slight agitation which is caused in running about, owing to the space being more extended, producing a feeling of well-being analogous to that caused by breathing country air. It is advisable to have a fire burning all day when the external temperature does not exceed 50° Fahr.

I have mentioned the temperature on one or two occasions, and digress here for a minute to remark that that invaluable instrument—the thermometer—is too often neglected or disregarded, or maybe misunderstood. There should be one in every nursery, not placed over the fire on the mantel-piece, as I have frequently seen it; but at the opposite end of the room, and out of reach of children. It is very useful also to have one placed outside the window, to see the external temperature. A bright-shining sun may deceive a nurse, by indicating a warmer atmosphere than really exists, and cause her to omit certain articles of clothing which may have been necessary. A thermometer will correct such error, for these instruments never tell untruths. In this and other ways it may be as useful to an intelligent nurse as is the "clinical" thermometer, which a medical man always carries in his waistcoat pocket.

The room then should not only be kept warm, but as much as possible at an equable temperature, say of 60° to 65° Fahr. This is easily done by regulating the fire, which should be of uniform size, and not a fierce furnace at one hour and a struggle for existence at the next. Inasmuch as children are very fond of playing with the fire, or at any rate near it, a high or nursery fireguard should be firmly fixed around it to prevent accidents. I omitted also to mention, when speaking of the windows, to have one or two rods across the front, to prevent any mishap from children

leaning out of window, which is by no means an infrequent source of accident.

The floor is best covered with some linoleum or cork matting, as a nursery floor generally has plenty of wear and tear. Such a floor-cloth is therefore admirably adapted for the purpose, but has the still greater advantage of being readily washed, and affords very little concealment for dirt.

The walls are, perhaps, best colour-washed, or painted with some warm and cheerful colour, with a few suitable engravings or nursery pictures, which form an object of attraction for young children.

Here also do away with curtains for the windows: they are quite useless, and help very materially to exclude light, which is often so precious.

As soon as children are old enough to run about and exercise themselves, such movements should be encouraged in every way, and toys which have this object in view are often very valuable, such, for instance, as a rocking-horse or swing, &c. While mentioning toys, it may not be amiss to remark that those with easily-removable paint, those made of lead, and all such toys as are small enough to be put into the mouth, should not be given to young children, —as marbles, coins, beads, &c.—lest, on the one hand, they get lead-poisoning, or, on the other hand, lest they swallow such articles, and become a great source of anxiety to their parents for a day or two—such accidents are almost of daily occurrence. While on the chapter of accidents, it may not be amiss to caution nurses against leaving about such things as scissors and knives, pins and needles, and other such instruments of self-torture, as far as young children are concerned. Matches, also, are very fruitful sources of danger, either from the combustible or soluble nature of one end of them. The latter is perhaps the

more grave danger of the two, as children too often develop strange tastes, and expensive ones, as this practice often costs its life from phosphorus poisoning. Medicine bottles also, and all bottles containing liquid of any harmful or questionable kind, should be kept carefully out of the way. It is astonishing how readily little ones will take to the bottle, even the bottle of physic, when they are not wanted to do so, and with most untoward results occasionally. I once saw a child swallow a whole bottle of homœopathic pilules, to the great consternation of the mother, who almost fainted at the sight; but, thanks to Hahnemann and his infinitesimal dose theory, no harm resulted.

I feel now much in the same condition as the typical country parson, who, having given a long sermon, with his divisions of firstly, secondly, thirdly, and in conclusion craves the indulgence of the faithful brethren for a few words more; as I promised a word or two about baby-farming, and the subject seems to me to dovetail itself somehow into that of the nursery, I will take a lesson from my clerical friend and ask for a few words more.

For the edification of the uninitiated, it may be worth while mentioning that a baby-farm is an establishment where two or more infants—generally more—are taken in to nurse and provided for apart from their mothers' personal care and supervision. From this definition it may be gathered that in the majority of cases these babies are illegitimate, or their mothers have little affection for their offspring or care little what becomes of them. These establishments are the outcome of one of those social evils wherewith it is necessary, or at any rate politic, to deal gently. There always will be children which must be provided for apart from the mother's supervision, and, unless this system of baby-farming is allowed, a still greater im-

petus will be given to the horrible and too prevalent crime of infanticide; and of two evils one must necessarily choose the lesser. What can we do to lessen the terrible abuses to which such systems are so especially liable?

I think we must adopt the principle of the three R's, —not those common ones of "reading, writing, and arithmetic," of which the proprietors of such farms are generally so ignorant, but those of Registration, Regulation, and Reformation. By *registration*, I mean that such persons shall obtain a licence for keeping a baby-farm, which should only be given to persons of known and certified moral character, and that such fact shall be duly and officially registered. By *regulation*, such terms on which infants may be taken in shall be settled by Act of Parliament; the money shall not be paid in a lump sum, but weekly; and the house shall be under official or public inspection. By *reformation*, all abuses into which they have fallen shall be remedied; all sanitary matters shall be under the supervision of the local authority; and all irregularity or improper treatment shall be severely and promptly punishable by law.

The whole system requires the most careful and thorough investigation, and is one which, in common with so many others connected with the well-being and careful treatment of our infant population, will thoroughly repay any labour and attention bestowed upon it; but until the interest which should be attached to the baby, by the loving care of its mother, is in some measure compensated for and bound up with the interest of the baby-farmer, the frightful mortality with which this system is almost invariably associated will not, I fear, be very materially lessened.

CHAPTER III.

THE NURSE.

AMONGST the adjuncts of the nursery, the most important, perhaps, is the nurse, for upon her devolves in great measure the duty of carrying out those sanitary arrangements which have been or have to be enumerated, and to her tender care is the infant committed. To her almost solely are entrusted the manifold duties of guarding its life and its health for the first few years of its existence.

For these reasons, I have devoted a special chapter to her consideration. Happy is the child who has a loving and intelligent mother for its nurse, but, unfortunately, amongst the well-to-do, the mothers have other household duties to perform,—duties which custom or their own inclination makes it imperative that they should perform *in propriâ personâ*, and the more important, more tedious, and onerous work devolves itself upon a hireling, and lucky indeed is the anxious mother who can secure the services of a competent and trustworthy substitute.

Nursing young children is an art which requires many special qualifications, and should be valued more highly than that of cooking and other departments of domestic work; that it is not very commonly so regarded may be fairly guessed by the scale of wages usually allotted to the various departments, where the culinary art is generally the most valued, and consequently the highest paid, service.

Nursing babies should not be looked upon as a profession, any more than nursing the sick. Experience is undoubtedly a most valuable qualification; but it too often makes the

nurse so wise in her own conceit as to make the information she possesses carry her beyond the mere routine service of her own duties, and usurp the authority of the mistress and of the medical attendant. Indeed, amongst nurses of the "old school" so called, it is almost an article of pious belief that doctors know little of the management of babies in arms, and are sceptical of their interference in slight ailments to which infants are subject; such nurses often do not hesitate to indoctrinate their mistresses with these ideas, and persuade the latter to try their own (the nurses) nostrums and methods of treatment; and young married women, having little knowledge of such matters themselves, are not in a position to dispute the specious arguments of their hirelings, and are, therefore, over-ruled by the latter, who promptly take every advantage of the position thus accorded them.

I do not here refer to those domestic parasites, of whom the Sairey Gamp and Mrs. Bulwinkle of fiction are familiar examples, although a few specimens of these types are still to be found. The genus of which these persons form such admirable caricatures is by no means extinct. But I have come across many old-fashioned nurses of riper years, who always remind one that such and such things were not done when they were young, and who are so imbued with their primitive or mediæval ideas, that they resent the interference of anybody whose views do not consort with their own, and challenge the authority of the medical attendant who suggests any improvement on sanitary or any other such "new-fangled" ideas, as she terms them. Mothers are often completely in the power of these matronly autocrats, and think it heresy to gainsay such "experienced nurses." Frequently they become afraid of them. I have known intelligent mothers with three or four children who are sufficiently strong-willed in other matters give way in the most

feeble manner to every whim and caprice of their hirelings, and excuse themselves by saying they are afraid of what the nurse may do to the children by way of revenge in their absence for any act of interference on the part of the mistress.

Let me now describe briefly some of the more important duties of nursing the young in general, and the qualifications specially useful for such an undertaking.

The chief attributes and qualities of an efficient nurse, apart from those of sobriety and moral character and previous experience before mentioned, which are always, or should always, be inquired into, before engaging so important a servant, are as follows: She should be patient, kind, and gentle, with no lack of physical strength, no bodily infirmity, personally clean, and well-mannered, with a light and dexterous touch, and should possess that kind of intelligence and *savoir faire* which makes her take in ideas of work quickly, and perform these decently and in order. Happy indeed is the fond mother who can find a substitute possessing this galaxy of good qualities! It is rarely that one meets with such a domestic treasure.

As a rule nurses trained at hospitals, whether a children's infirmary or a general hospital, do not make good nurses for infants in private families. A very important distinction must always exist between the duties which are required under such very different circumstances and surroundings. The qualities necessary for home nursing are far more varied and miscellaneous than those for hospital work, where, if it be a well-ordered institution, all appliances and aids for nursing, whether manual or mechanical, are always at hand. Indeed, for private or domestic purposes, as a general rule, the "trained" or "professed" nurse is often an anomaly. Every item of information she may have acquired beyond the mere washing, feeding, clothing, and

generally tending the children committed to her charge is not only useless, but may be intensely mischievous.

At best a trained nurse is but a half educated woman, whose limited medical knowledge is often dangerous, as it is almost sure to be put into practice, and nurses even go so far as to administer their own remedies in case of sickness. Having plenty of material at hand in hospital-nursing, she finds in private that she has often metaphorically to make bricks without straw, and so, thrown on her own resources, when weighed in the balance is found wanting in some important particular.

Those whose lot in life is to follow the laborious and often thankless task of nursing must above all things learn to do much with very little in the way of appliances, and no person thus brought up is fit for "out-door" work who cannot dispense with these aids; and in case of sickness it should be remembered that the nurse is the servant of the doctor, and must carry out his instructions to the letter, and the best sick nurse is she who can subordinate her own ideas as to treatment to those of the medical man. In such cases the mother nearly always makes the best nurse, for this very reason.

The nurse should not be allowed to punish children, or at least to inflict corporal punishment upon them,—this should be left to the discretion of parents. These, however, are often too indulgent to the faults of their offspring, and the sparing of the rod of moral correction, in cases where the child has arrived at the age of knowledge between good and evil or right and wrong, frequently results in the spoiling of the child. But I shall have a word or two to say respecting punishments in another place.

It is now necessary to speak about certain branches of infant nursing, and I wish to particularise those of the monthly and wet nurse respectively. A woman makes a

good and efficient monthly nurse just in proportion to the amount of practice she has had under proper teachers, and in proportion to her capacity for "reading, marking, learning, and inwardly digesting" such instruction. Perhaps I should not have said "reading," for the subject is so eminently practical, that knowledge acquired in this manner is of doubtful value; but many excellent books have been written on the subject which are presumably read by the nursing tyro. However, it should be remembered that reading alone is of little use,—indeed, it not often fails signally in helping forward this knowledge, and becomes positively mischievous, in causing the readers to be priggish and self-opiniated, because many such books are so redolent of religious and sentimental cant as to give nurses absolutely false ideas as to their duties and position.

Apart from the services which are required of the monthly nurse in attending to the mother (whose condition should be looked upon as physiological rather than as pathological —a natural state, and not one of sickness), the state of the new-born infant is one which demands the utmost care and attention.

Such an infant is entering upon an entirely new phase of its existence, and is dependent upon such treatment as will prepare it for the struggle for existence which must chiefly be administered by its nurse, while the mother is kept in that state of rest which her condition renders imperative.

A more striking example of helplessness and weakness it is impossible to conceive than the condition of the new-born babe as it is placed under the care of the monthly nurse. Conscious, it may be, only of an unpleasant sensation of cold, it manifests the great sensitiveness of its nervous system by a series of cries, which are themselves of benefit to the child by the physical expansion of

the lungs, whose functions now for the first time it is called upon to perform. Incapable in any other way of contributing its item in the struggle for existence, it requires assistance of every kind, and if left to itself quickly perishes. The temporary exposure to cold having thus fulfilled its purpose in establishing respiration, any further exposure becomes unnecessary and harmful. On the contrary, warmth is a *sine quâ non*—hence it is customary to wrap the child in a warm, soft flannel, and to place it near the fire. Instinct leads mothers to keep their children warm; physiology teaches the same truth, for the temperature of the mature child at birth is naturally about five degrees less than that of the adult, which in health is 98·4° Fahr. Moreover, infants, by presenting a larger relative surface of skin, have a greater tendency to lose their animal heat, by more rapid cooling of that surface; and in case of premature or weakly infants, the nurse may use her own discretion, in the absence of the medical man as to artificial warming of the child, by enveloping the body and limbs thoroughly in cotton wool, and placing it in an open basket or cradle near the fire.

But, supposing the infant to be healthy and active, it should be thoroughly washed with a soft sponge and warm water, using perhaps some bland, unirritating soap, then carefully dried, and dusted with a little violet powder in the flexures of joints. The cut extremity of the cord should be looked at to see that there is no oozing, which may necessitate a second ligature, and then wrapped in a piece of lint or soft rag, and laid flat upon the abdomen, where it must then be kept in position by a thin roller bandage of flannel gently applied two or three times round the body and fastened by strings. The child should then be dressed in its long clothes, which should be made of a light, soft, and warm material, and when

practicable strings should take the place of pins, but if these are used they should be safety pins.

After the child has been washed and dressed, an old-fashioned custom still largely prevails of dosing it with some mild aperient, such as treacle and butter, castor-oil, or some equally disagreeable concoction. This practice, which is founded on ignorance, is quite unnecessary and unscientific. Moralists tell us that the first downward step is the one to specially guard against, and as this is but the beginning of that mischievous and dangerous habit of indiscriminate domestic drugging of which many monthly nurses are so fond, it should be promptly reproved and forbidden. The action of the child's first food is generally quite sufficiently aperient, and there is no reason why the child should not be put to the breast of its mother as soon as the latter is sufficiently recovered to take it; such a practice mutually benefits the mother and child,—the mother by drawing out the nipple, and by materially lessening the tendency to flooding, in a manner which is familiar to many; and the child, by getting a dose of nature's aperient, the first milk technically known as "colostrum," which is much more suitable than any artificial substitute provided by the nurse, and none the less palatable.

A monthly nurse must be most scrupulously clean in habits, both personally and with regard to her attendance on the mother and child, for the mother is very susceptible to any septic or infectious influence. An unusual amount of care is necessary to ensure the cleanliness of sponges, napkins, and other articles which are necessary. The former may be dipped in a weak solution of carbolic acid before use to ensure their freedom from organic impurity, and it is also advisable to clean the hands with this or some disinfecting fluid before washing or changing the

patient, so that every possible risk of the nurse being in any way the carrier of disease-germs, which might give rise to that very dangerous condition known as puerperal fever, may be avoided. It is still more important that she should keep the patient free from any risk of self-infection, by carrying out to the fullest extent the directions as to washing, injecting, &c., which she may receive; indeed, it is often advisable to give any such directions in the hearing of the mother, who may remind the nurse if they have not been strictly attended to.

Then comes the question as to whether the mother is capable of nursing her child or is willing to do so, and if it is advisable that she should do so.

When there is a strong hereditary or acquired predisposition to such diseases as scrofula, tubercle, syphilis, cancer, or insanity, it is generally deemed inadvisable for a mother to nurse her child; also, of course, if she is suffering from any disease, whether due to her puerperal state or not, and an exceedingly sensitive and neurotic temperament are all disqualifying conditions for a mother becoming the child's nurse.

But, over and above these, the mother's milk may not be sufficient in quantity or good enough in quality to be given to the child, or again the nipples may be so retracted, malformed, or painful as to prevent the satisfactory nursing. The nurse should see that these are well drawn out by means of a breast-pump if necessary, and should carefully wash them or have them protected if there is any tendency to soreness. A little weak spirit and water, one to four parts, forms a satisfactory and useful lotion in this case, by hardening the nipples, and by preventing their becoming eroded, or "cracked," as it is termed; for if this happens, the process of nursing may become very tedious and painful to the mother, so as to cause the child to be withdrawn from

the breast, or to be limited in its supply, in consequence of the discomfort which putting it to breast causes. The monthly nurses of the present day are, as a rule, far wiser or better informed than their ancient predecessors, but very many have still a great deal to learn and many little faults to overcome. Over and above those delinquencies which I have noticed, many such attendants are too fond of thinking and caring about their own personal comforts, of their own meat and drink; and when such is the case they frequently give too little thought to their other duties, and become indolent, sleepy, and selfish. Their work is truly fatiguing and self-denying, if it is to be successful, and their bodily comforts should be supplied freely and without stint; but their services to the mother and child must be their first consideration, and everything must be subordinated to these. Then again, many are so very mechanical in the way they do their work, resembling more an "automaton" or animated machine, looking upon their charges as so many "cases," which have to be nursed and got through in a few weeks. This accusation one frequently hears alleged against doctors, that they become hard-hearted and callous in regarding their "cases," as patients are sometimes termed. Now in this instance (although I think it is more often assumed than real), the medical man is perfectly justified in keeping his personal feeling and sympathy as much out of the question as possible; and when it is impossible for him to do so, from his relations to the patient, it is generally the latter who suffers the more in consequence; and it is as much for this reason as anything that doctors are not in the habit of attending their own wives and children, because their sympathies might override their prudence and judgment; so that to call a doctor, callous and unsympathetic, is to my mind in many cases paying him a compliment rather than the reverse.

But the case is far different with the nurse, whose sympathy should be manifested, discreetly of course; and who should not be a mere machine who has to get through a certain quantity of cleaning and feeding and nursing. For she is the constant companion of the invalid and the weakly, and should attend to their wants in a bright, cheerful, and loving spirit, if she wishes to become successful in her sphere of work.

Others give themselves too many airs, on the "Jack-is-as good-as-his-master" principle. They consider themselves far superior to the other domestics, and often, in the sick room, as knowing as the doctor, or nearly so. A little judicious snubbing on the part of mistress and doctor is good for such as these.

Then there is the talkative nurse, who is so very fond of relating any remarkable cases she may have come across, generally highly-coloured and exaggerated. These often do much harm, by exciting the patient when her nervous system is below par, or in a high state of tension, and by preventing sleep and that rest of mind and body which is so essential a feature in the lying-in chamber.

If there is any condition which prevents the mother from suckling her infant, then the work of bringing it up "by hand" devolves upon the nurse. Here again special care is needed in point of cleanliness, for the cleansing of the bottles, tubes, and teats; it is of the utmost importance that these should be kept scrupulously clean, for if any particle of milk be left it soon becomes sour from decomposition, and this rapidly causes any fresh milk to turn sour from fermentation, and to act as an irritant rather than as a nourishment. But as I shall have a good deal to say about the feeding of infants in another chapter, I will now proceed to say something about another specialty in the nursing department, viz., the wet-nurse.

Supposing the mother to be incapable from any cause of performing the duties of nursing her child, she must either procure a wet-nurse or bring it up by bottle. The former plan is usually far more satisfactory, where one can secure the services of a suitable foster-mother,—indeed, there are some cases where such a substitute is necessary to save the infant's life. As a rule the selection of a wet-nurse devolves naturally upon the medical man, and it is a matter of no small importance. There are, however, many points which can be as well, if not better, seen into by the mother who requires a *locum tenens*, so that an enumeration of the principal requisites will not be out of place. It does not by any means follow that, because a woman has an abundant and apparently rich supply of milk, she is of necessity well qualified for the post. She should be from twenty to thirty years of age, healthy in all respects, and country bred if possible.

It is obviously necessary to get a good family history; also to find out whether the wet nurse has any constitutional disease which may be transmissible to the child; such, for instance, as those I mentioned as disqualifying the mother from nursing. Loss of teeth by decay, and of hair by falling out should be noted; also any eruption on the skin, any affection of the throat and of the glands of the neck are all suggestive of disease; and if any such signs exist the medical man should be consulted as to their nature and importance. The breasts should be examined, as a matter of course; these should be well formed, firm, and vascular, and the nipple should be free from any excoriation or fissures at the base, for if these be present they are difficult to heal, and cause great discomfort in nursing, and if this causes suffering there is always a probability that the nurse will not be as eager to put the child to the breast as the child is for its nourishment. As the best test of the pudding is said to be in the eating of it,

so a very fair guide to the quality of the nurse's milk may be seen in the result on her own child, if it is alive; and the examination of the latter should not be overlooked. It is also advantageous that the two children should be about the same age; at any rate, the milk of the wet-nurse should not be much "older" than the child she is going to nurse. Other matters having reference to the previous experience in the rearing of children are of less importance, and can be most suitably inquired into by the mother.

Then it must be remembered that the diet must be regulated and suited to the nurse's requirements; plain and easily-digested food is best, and as nearly similar to her accustomed fare as possible. Stimulants, in moderation, if she has been used to them, should be allowed, but not otherwise; they are often unnecessary, and in some cases harmful, causing undue drowsiness in both foster-mother and child.

When the wet-nurse is suckling her own child as well as that of her mistress, special and constant care should be taken to see that there is an adequate milk-supply for the maintenance of both.

She should have cleanly habits and a cheerful disposition, but her nursing qualifications, as manifested in the child's development and growth, are of the first importance, and for her other qualities it is often wise not to be over-particular: a good supply of healthy milk should cover a multitude of sins, and a mother who is unable to suckle her infant is exceedingly fortunate if she finds a satisfactory substitute in the person of a healthy and well-supplied wet-nurse.

CHAPTER IV.

DIET OF INFANTS.

IN the event of a mother being unable from any cause to suckle her child, or in that of her being unwilling or unable to find a suitable *locum tenens*, the only alternative is to resort to the bottle, and bring up her child by artificial feeding. This is at once so important and difficult a matter to perform satisfactorily, that I have devoted a special chapter to its consideration. Remembering that the mother's milk is incomparably the best diet for infants, we must approach as nearly as possible to this standard, and do our best to imitate nature, if we would be successful.

Milk is the only perfect food that exists, that is, it is the only form of nourishment which will, by itself and unaided by other forms of food, sustain life. It contains all the essential elements of what is known to physiologists as "food-stuffs" requisite for the support of an omnivorous animal. But the milk of various animals differs very considerably in its composition.

Human milk contains approximately 89 parts of water, and 11 of solid constituents in 100 parts. The latter consist of casein, butter, sugar of milk, and salines. For practical purposes we need only compare this with cow's milk, which, from its being so readily procurable fresh and pretty reliable as to purity, is the most commonly used substitute.

Cow's milk contains the same ingredients as human milk, but in a different proportion. Thus it has 13·5 solids in 100 parts,—it is therefore a much stronger

milk; it contains far more casein, butter, and salts in proportion, but less sugar, so that to approximate it to our standard we must "doctor" it by diluting the casein and butter with water, and then add a little sugar, which ingredient by dilution necessarily becomes still less in proportion to the amount found in human milk.

I say a little sugar advisedly, because too much is usually added, and a large quantity upsets the stomach, and tends to make the child thirsty, causing it to cry for more, which if given only adds fuel to the fire. Sugar of milk is preferable to lump-sugar, as it is not so sweet as cane-sugar, and contains the salts usually found in milk. In the absence of this, pounded white sugar should be used in the proportion of a teaspoonful to half a pint of milk and water. The coarse brown or "moist" sugar should never be used, as it is too sweet and is liable to ferment.

Another important point in which cow's milk differs from human is the different way in which it is acted upon by the digestive fluid of the stomach—gastric juice. Human milk coagulates in fine flakes, whereas cow's milk coagulates in much firmer clots often in lumps, and this is not preventable by mere dilution with water. The addition of an alkali, such as lime-water, in some quantity to the milk will often bring about this desirable end; this should be added in sufficient quantity, from a quarter to a third part, in order to effect this. As lime-water is such a useful adjunct to milk in the dietary of infants, and as it is important that it should be freshly made, I may here mention the simple process by which it is made. Get a large glass jug, fill it with pure, soft, filtered drinking water, or preferably distilled water, and into this place a few small lumps of ordinary, clean, unslaked lime; shake or stir it up, and allow it to stand for a few hours, then pour off the clear fluid, which is lime-water, and keep in a well-corked, clean

bottle. It does not matter how much lime is put in, as water will only dissolve a small quantity (about half a grain to two tablespoonfuls, or a fluid ounce).

Another plan of preventing the solid curding of milk is to add barley-water or a little of some farinaceous food, of which so many forms are concocted, advertised, bought, and given to infants with varying results. A great deal has been written and said about the administration of these patented foods; they are much abused by many physicians and praised by others. This great discrepancy of opinion arises in many cases, I think, from the fact of these foods being regarded as substitutes for milk. This they cannot be, but are merely adjuncts or vehicles for its administration. These foods, so called, are mostly farinaceous, *i.e.*, largely composed of starch, and, inasmuch as starch is insoluble and consequently indigestible, it is argued that they are unsuitable; for young infants under three months have not their salivary apparatus developed, one very important function of which is to convert starch into grape-sugar, and thus render it soluble. But most of the better prepared foods are made by subjecting the farinaceous element to a high temperature, which alters the chemical properties of starch,—converts it, in fact, into dextrine. At any rate, I have administered them in very many cases with manifest benefit, and it has been said that a pound of fact is worth a ton of argument. Those which I have chiefly used have been Nestlé's and Savory & Moore's manufacture, and I have known equally good results accrue from Liebig's and from Mellin's Food for Infants.

On the other hand, I think the majority of children thrive perfectly well upon milk alone, given without any addition, save perhaps a little lime or barley water added occasionally. All babies are not alike, even though healthy;

some thrive best on one diet, others on a different one; but I think it always best to commence with ordinary cow's milk and water, and if this does not answer satisfactorily, to try the addition of some other simple adjunct.

For the first two or three months I have generally found one part of milk to two of water sufficient proportion if regularly given, as it should be, about every two hours, adding more milk proportionately as the child grows older.

It should always be warmed to about the temperature of the body, and only enough for one meal should be mixed at a time,—about four ounces,—and the bottle should be taken away from the child as soon as it is empty, so as not to allow it to go on sucking in air, which causes flatulence.

Great care should be taken to give the bottle at regular intervals, and not to repeat the meal just because the child cries, as the nurse thinks, for more. Over-feeding is one of the greatest banes of bottle-fed children, causing, I think, more indigestion than nurses are willing to admit.

The child cries, and the nurse argues with herself that it wants soothing and rest, especially as the latter coincides with her own wants, so the ever-ready bottle, filled and re-filled, is pressed to the infant's lips. A temporary rest is sometimes thus obtained for the child's lungs, but what about its stomach? This unfortunate viscus also needs rest, and if this is not forthcoming, the milk is rejected by vomiting, the stomach is thrown into a state of disorder for some days; and it is often no easy matter to quiet the offended organ, and restore it to its previously healthy condition.

Sometimes, despite every possible precaution, in respect of preparation or careful administration, children cannot digest fresh cow's milk. In such cases I have frequently known the very best results obtained from substituting the Swiss Condensed Milk. This is simply cow's milk

evaporated down to a thick, creamy consistency, and cane-sugar added to sweeten and prevent decomposition. There is generally too much sugar in many of the brands sold, so I commonly suggest the unsweetened form, and add a little sugar of milk; but, unfortunately, this does not keep so long after being opened. Care should be taken not to give this too strong at first; a teaspoonful to four or five fluid ounces of water is usually strong enough to commence with. It may be gradually strengthened month by month till it reaches three or four times this strength.

By virtue of its cheapness, its convenience, and keeping properties, the Swiss condensed milk has become exceedingly popular amongst the poor of our large towns, where milk is comparatively dear when really good, and not always obtainable fresh; and I have known many children healthily reared on this milk alone, and especially with the addition, after a few months, of some of the patent infants' foods, in which the poorer classes believe most religiously.

Apropos of the impurity of the milk-supply of our towns, to which I have just alluded, it has been stated by those who are authorities and well up in the facts of the case, that as the law now stands, or rather is administered, an average dishonest dairyman who uses the "cow with the iron tail" makes more profit out of a good day's watering of milk than he would have to pay as an ordinary fine when the inspector procures a sample from him. Moreover, the President of the Society of Public Analysts has shown that, with few exceptions, the London milk bill is increased annually by some hundreds of thousands through this reprehensible and dishonest custom of adulterating and skimming.

Such being the case, it becomes highly important that mothers should see that they get good milk, and not its diluted representative; and it may be very fairly tested as to

purity by comparatively simple means within the reach of everybody.

Firstly, there is the ordinary "lactometer," a cheap instrument for ascertaining the density of milk. If this is immersed into a tumbler of milk, it will sink down as far as a certain level, where a number will be found, giving the density of the particular specimen, as compared with water. This is made to stand at 1,000, and the density of an average quality milk will be 1,030. If its density or specific gravity is markedly below this, and the milk does not contain a large quantity of cream, it may fairly be assumed that it is diluted, and a specimen should be sent to the public analyst for his verdict. The cream, which separates out from the milk, by its being lighter, floats on the top; and by getting a long glass tube, preferably graduated, and allowing the milk to remain in it for twelve hours, you can compare the volume of the cream with that of the milk. Some rich milks yield nearly a quarter part by volume of cream. If it is less than one-tenth, and the lactometer also shows a very low specific gravity, say 1,020, you may be pretty sure that, if the milkman has not added water to it, somebody else has been tampering with it.

Then again there is the lactometer now commonly sold, which tests the milk by the colour of a thin layer of the specimen tested spread on its disk, as compared with that of milk of known quality. It is a very simple test, and, I believe, tolerably accurate.

If the milk is deficient in cream, it is generally advisable to make up for this deficiency by the addition of a teaspoonful of raw cream to a feeding-bottle full of milk (a tablespoonful to a pint of milk and water).

Ass's milk and goat's milk are said to be very beneficial in the artificial rearing of children, from being the nearest approach to that of woman in point of chemical composition,

and are considered to be preferable to cow's milk when obtainable. I have had no experience of the former, but have known goat's milk act very well in a few cases. But it is difficult to obtain, and consequently will never become generally used.

It is said that the milk should be given which always comes from the same cow to any individual infant, and such a saying has reason in it, because cows do vary notoriously in the quality of their milk, and experience tells us that infants are not partial to a very mixed diet. So mothers often give the dairyman an extra price to secure this desideratum. How far this extra premium is earned I should not care to speculate, but from a few cases where I had special reasons for scepticism I should not make too strong a point of this, unless I knew the dairyman only possessed one cow.

Let me now say a word or two about the nursing bottle. A large number of these are in the market or chemist's shop, of all shapes and sizes; most of them simple and ingenious in structure, others equally complicated and mysterious. They all have the same object in view, that of enabling the infant to suck the milk freely and easily from an artificial nipple at one end of it. The process of feeding successfully by their means hinges very materially upon the care of the nurse in thoroughly cleaning the apparatus, for if it is not kept scrupulously clean little particles of milk-curd hang about the tube and teat, and, being partly decomposed, set up irritation in the stomach by being swallowed.

For these reasons I am antiquated enough to eschew most of the newer machines, and to prefer the old-fashioned, boat-shaped bottle, with only a teat at the end; because, over and above the advantages of cleanliness, it possesses the virtue of necessitating the nurse to superintend personally the feeding of the infant, prevents its getting its food

too fast, and the sucking in of air; and an intelligent and careful nurse should not grudge the little extra trouble which this gives. After the bottle has been used, it should be rinsed with water containing a little soda dissolved in it, and then immersed in cold water till next wanted. Two bottles used alternately are often advantageous in ensuring cleanliness.

The feeding-bottle has often more to answer for than is commonly supposed. Once I was a witness at a coroner's inquest, where the verdict was practically "killed by a badly-constructed feeding-bottle," although in this instance, at least, the bottle was innocent of the crime. Perhaps a few details may not be uninteresting. About six years ago I was called to see, and prescribed for, a very emaciated, puny, illegitimate child a few weeks old. I soon diagnosed starvation, and, on questioning the mother, was told its food had chiefly consisted of powdered biscuit in water. After giving minute instructions as to how to feed the child, and ordering the mother to get a feeding-bottle, I left, thinking my instructions sufficiently explicit and practicable. Next morning I got a message to say the child was dead, and the friends wanted a death-certificate. I did not think I was justified in giving one under the circumstances, so there was a coroner's inquest, a post-mortem examination, and my evidence was death from starvation.

The coroner, however, exonerated the mother by saying she called in the doctor, and carried out his instructions; and the "gentlemen" of the jury, vigorous men, after having each criticised the bottle, and made a vain attempt in turn to abstract the liquid in it through the tube, unanimously were of opinion that it was partly through an imperfect feeding-bottle that the child died!

The following day I was mildly reproving the chemist

who sold the bottle, when it transpired that this was actually purchased *after the child's death !!*

But, as I have before mentioned, bottles and teats and all the paraphernalia of artificial feeding are not to be thought of where the mother's milk is obtainable. The best substitutes for breast-milk are open to objection; and one can hardly be astonished to find that bottle-fed children are more liable to disease, or that the mortality amongst children thus reared is far higher than those who are properly nursed by their mothers. On this account alone, it becomes the solemn duty of the loving mother to give her offspring the best possible chances of life, and of avoiding all those diseases from which this method of nursing gives comparative immunity. I will therefore offer a few suggestions to mothers who are competent and willing to thus do their duty to their children as such, over and above those enumerated as applicable to wet-nurses, by giving them the valuable nourishment with which nature has endowed them.

The new-born infant should be put to the breast hours after its birth, and no other food should be administered, even though there be very little milk; there is usually sufficient to nourish the child till the supply comes in its full amount, and it is advisable to allow the child to suck the little it can, and to draw the nipple out. There is no fear of its being starved.

Sometimes a mother omits to suckle her baby because the milk has left her in previous cases in a month or two after her confinement. This is a mistake: she should try, if it be only for a month; it will be something gained, and, even if the mother has only a little milk, not sufficient to nourish the child, this little, if of good quality, should be given, and the deficit made up by a little milk and water, unless it be found that the two diets manifestly disagree

with the child. In the meanwhile, the mother should by her diet encourage the further secretion of milk. There are also medicines which are sometimes successful in increasing this secretion. Drugs having this property are known technically by the cumbrous and ugly name of "galactagogues." My experience of their utility is not very favourable.

The child should be nursed by the mother, as with the bottle, at regular intervals of about two hours for the first few weeks, and it is advisable that both breasts should be alternately given. If possible, the mother should be undisturbed during this early period at night-time, so it is a good plan to accustom the child to sleep at the same time, by no means a difficult habit to acquire. But if the mother is tired and wanting rest, it is better for the nurse to take the infant from its mother, and allay its hunger with a little milk and water, rather than awaken the mother. After two months, the child need not be fed so often, but should be given more milk at each nursing. And let me again here remark *avoid over-feeding*, and do not let the child have the breast at all odd times, simply because it cries; the latter manifestation is far more likely to be the result of flatulence, indigestion, or other discomfort, rather than hunger, and an additional meal will most probably aggravate rather than cure this condition. The irritable, peevish whine, accompanied by kicking about the legs and a hot skin, all indicate indigestion and not hunger, so that the stomach requires rest and not increased work thrust upon it.

If the child thrives, and the milk-supply is abundant in quantity and good in quality, the mother may continue to nurse it for nine months, when it must be gradually or entirely withdrawn, according to circumstances; but the period of lactation should never in any case be prolonged beyond twelve months. Amongst the poorer classes, it is difficult to

persuade them to do this : they will often persist in suckling for eighteen months or two years, to the detriment of health of mother and child, believing that nursing is an impediment to conception. That it is a very unreliable prophylactic is evident from the fact that about fifty per cent. of these become pregnant while they are suckling; but that it is an unhealthy and mischievous custom is evident both in the mother and child.

It is a very common belief amongst nurses that the appearance of the monthly courses during lactation is beneficial; this is entirely erroneous, and it is sometimes advisable to withdraw the child from the breast during these periods at least, for many cases of rickets have been presumably traced to the fact of the child being nursed while the mother is in this condition. Pregnancy also is prejudicial to the quality of the milk, and nursing should be forbidden under these circumstances. Again, if the mother's health should suffer either from acute disease, or as the result of nursing the child must be weaned. This process of weaning is best effected by gradual withdrawal of the breast, giving it perhaps once or twice a day; but if the child refuses other food, either a little judicious starvation may be needful for a day or two, or the nipple may be covered with a solution of quassia or something distasteful to the child. This plan is objected to by some, but I have known many instances where it has become almost a necessity, if the mother remains with the child; but if the weaning is judiciously managed by gradually supplying a little artificial food, and by increasing the amount allowed slowly, little difficulty is generally experienced, and the food is made to become more solid and to approximate that which is to be the future diet of the infant.

CHAPTER V.

DIET AND EXERCISE OF CHILDREN.

THE period of weaning is to some extent indicated by Nature's providing children with teeth, thus preparing them for the ingestion of a more solid diet; but it is not advisable that they should exercise these (other than upon the india-rubber disks and rings with which they are commonly provided during their development), for several months after the teeth have made their appearance through the gums.

For at least six months after the child has been weaned, the chief nourishment should consist of semi-liquid food, "spoon diet," as it is technically termed, or, in more vulgar parlance, "sops" and "slops," respectively. The stomach, still weak and undeveloped, is not, at this period of the infant's existence (twelve to eighteen months), capable of digesting solid food. It is still delicate and easily disordered, so that ample time must be given to gradually prepare it for the change from the liquid to the more solid dietary.

At this age, then, the diet may be selected from such things as arrowroot and corn-flour, made with milk and water; plain biscuits, such as rusks, "tops and bottoms," or Robb's biscuits, soaked in boiling water and strained and served with warm milk sweetened with sugar; light milk puddings, made with bread, sago, ground rice, or isinglass; and such other modifications of the milk diet as are familiar to mothers and nurses. But it is not now necessary to confine the child solely to this diet. Eggs lightly boiled

may be given, or a light custard pudding, mashed potatoes with gravy, and chicken broth, or beef-tea, the latter not too strong.

As a good deal of variety of opinion—not to call it ignorance—prevails as to the method of making beef-tea, and seeing that it is so valuable an article of diet for persons whose digestive powers are limited, and that its value is largely dependent on the way in which it is made, it may be useful to describe its manufacture:—A pound of fresh rump steak, freed from bone, gristle, and fat, should be cut into small lumps (none of which should be larger than a cubic inch), and placed in a wide-mouthed stone jar, and a pint of cold water added. Throw in a little salt, and carefully cover the jar with a well-fitting lid, and place it in the oven for about two hours, then strain through a coarse sieve. The pieces of meat may then be placed in a pestle and mortar, and well pounded, and again mixed with the fluid, and returned in the jar as before, to the oven for another hour, and strained through a hair sieve. The fluid should then be well skimmed and served.

If rewarmed, do not heat beyond the temperature used in its manufacture, and especially do not boil. This warming should be done in an enamelled saucepan. It should be warmed gradually.

A small teacupful of such beef-tea, served with rusk or bread-crumb, with some light farinaceous pudding to follow, should make a very fair average meal for a child between twelve and eighteen months old.

As the child gets older, and cuts most of its "milk-teeth," the diet should be further extended by the addition of oatmeal porridge, with milk, bread and butter thinly cut, well-cooked vegetables, and a little fish or fresh animal food,—mutton and chicken preferably.

It is, of course, difficult, and indeed inadvisable, to lay

down any hard-and-fast rules for the dieting of young children after the age, say, of two years or two years and a half, at which time they should have cut all their first teeth; but care should be taken to avoid all very complicated foods, and such as are at all indigestible. Plain, light cakes and pastry seldom do harm if moderately indulged in, and fresh, ripe fruit given occasionally is often beneficial, care being taken in hot weather lest these should produce diarrhœa. A custom prevails among some indulgent parents of allowing young children to appear at dessert after a late dinner. It is an unwise and often mischievous procedure to allow little ones to regale themselves with fruit, biscuits, or sugar-plums, at a time when they should be in bed.

Bon-bons and sweets, of which children are notoriously fond, should be allowed with strict moderation. Cane-sugar is very liable to set up a process of fermentation in the stomach, which manifests its presence there by flatulence and acidity; it, moreover, causes caries and decay of the teeth, of which we may have ocular demonstration, or even "auditory," from the cries of the child from toothache. Another risk from these sweetmeats is the poisonous colouring still too often indulged in by the confectioner, who is anxious to please the eye of children, as a preliminary inducement to the palate. Parents should, therefore, be careful to be strictly moderate in their supply of such luxuries, and equally particular in the choice of sweetmeats, —to select only the purest and simplest forms, if they would avoid evil consequences.

As regards drinks, it may appear to some unnecessary to state that children should not take alcoholic drinks of any kind, excepting when specially ordered as medicine; but having frequently seen children encouraged to take a little wine after their meals, or if they have asked for wine on

the table, to have such wishes freely indulged, I have thought it advisable to strongly deprecate any such custom, as it will probably engender habits later on in life which may not be easily broken, and recoil with sorrow upon the heads of parents who countenance such a mischievous and ill-advised custom.

Tea and coffee are, also, beverages of doubtful propriety for children, and should not be given to young children. They each contain essentially the same active principle called theine, or caffeine, which is not in any respect to be regarded as a food, but rather as a stimulant to the nervous system, without the subsequent inebriating toxic and depressing effects of alcoholic drinks.

Water is one of the most important of our foods, seeing that our bodies contain two-thirds of their weight and the blood four-fifths of water. Moreover, the system is constantly getting rid of water, which is being excreted either by the kidneys or skin, or exhaled by the lungs in respiration, and must be replaced by a corresponding quantity ingested with our food. Water to be suitable for drinking purposes, or mixed with other foods for cooking, must therefore be *pure* and *wholesome;* and many diseases may be produced if these conditions are not obtainable. It should be clear and colourless, and free from suspended matters, which, however, can be separated out by filtration, a process which all water should undergo before it is used for drinking purposes.

Water very commonly contains a large quantity, comparatively speaking, of mineral salts dissolved in it, especially when obtained from springs. These salts are principally those of lime, soda, and magnesium. If there is a large quantity of these salts in water it is said to be *hard.* A moderate amount of hardness does not form any objection to its use as a drink; on the contrary, it is often more free from organic impurity than the softer waters, and the lime

which usually preponderates is useful in young children in helping to build up the firmer tissues of the body, such as bone, which consists largely of phosphate of lime.

But a very hard water causes a tendency to calculous diseases, and if due to magnesium predisposes to goître, or Derbyshire neck; for in this county the water is largely impregnated with magnesian limestone, and gives rise so commonly to that unsightly swelling of the gland in the front of the neck. Water found in marshy districts and from wells sunk in the neighbourhood of open sewers usually contains a large quantity of organic matter, and is dangerous for drinking purposes, although it may be clear, bright, and sparkling, and to all outward appearance very tempting and wholesome. Children should never be allowed to drink water from stagnant ponds, or indeed anywhere out of doors, unless something is known about its source and purity.

Water obtained from artesian wells is generally wholesome so also is spring water as a rule. Water from shallow wells, and river water are very liable to contain some animal matter, such as sewage or products of decomposition of animal or vegetable refuse, and are therefore usually unfit for drinking. It is a good plan to boil water, especially in summer, before using it as a beverage. Such a process destroys animalculæ and other organisms, and thus renders them harmless. It is necessary to filter it after boiling, in order to aërate it, and to separate out any suspended matters.

Various filters are advertised and recommended, and those by well-known makers, such as Lipscombe, Cheavin, or Jowett, are generally reliable. The silicated-carbon and spongy-iron filters are valuable, because they are free from animal charcoal; and some forms of the latter are said to possess the property of separating out any lead which may

be dissolved from the service pipes or cisterns. Many diseases have been undoubtedly traced directly to drinking water, such as cholera, typhoid-fever, diphtheria, dysentery, lead-poisoning, &c., so that it becomes a very important matter for parents to be extremely particular as to its purity, and in cases of any doubt an analyst's fee is money well spent.

Exercise.—Bearing in mind that the period of infancy and early childhood is one of rapid and increasing development, it becomes important to look after the muscular system, so that this may not be in any way impaired by want of exercise; for, unless the muscles are worked, they become flabby and ill-formed for their functions of locomotion or other uses. On the other hand, the bony framework, upon which these muscles act, is, it must be remembered, only partially matured, so that this exercise must be carried out with caution.

Thus, few infants have sufficient strength and stability of the backbone to support themselves sitting in an upright position till they are at least three or four months old, and until they are able to do so with ease they must be kept reclining in the nurse's arms or lying on their backs with the head supported on a pillow. Undue exercise from keeping the child more or less in an upright position is by no means an unfrequent commencement of that deformity known as curvature of the spine, which lasts a lifetime. Moreover, it is a bad plan to toss infants into the air, to rock them violently, or constantly pat them on the backs by way of soothing them.

It is advisable to allow free movements of the legs and arms, hence the long-clothes should be done away with as speedily as possible; and in any case babies should not be hemmed in, and kept perpetually in a kind of starched bandage, which these robes are too frequently made to

resemble. Babies should not as a rule be allowed to take exercise in the open air before they are three weeks or a month old, and not then unless the weather is warm and genial, and they are otherwise thoroughly protected against external cold by proper clothing. For this latter purpose, also, it is advisable for the nurse to carry the child till it is three or four months old at least, so that the infant may have the additional warmth of contact with the nurse's body. After this age is reached, and the child has acquired some strength in its bony and muscular framework, it may be promoted to the luxury of the perambulator,—a luxury in which the nurse will to some extent participate, from the increasing size and weight of the child. The modern four-wheeled perambulator, which has the hood in front, so that the child sits or lies facing the nurse, is preferable to the old-fashioned tricycle.

When the child is about ten months old, it may generally be allowed to crawl about on its hands and feet; and a couple of months later perhaps, if strong and healthy, may be allowed to stand its weight on its legs, and make attempts to walk, supported under the arms to prevent falling. If the child is backward in its development, or has any tendency to rickets, as manifested by enlargements of the ends of bones, as at the wrists, or late teething, a large head, with prominent forehead and large abdomen, great care should be taken lest the bones, which are so soft in this disease, become bent by the weight of the body, or still worse lest the spine should become curved.

When the child has acquired the power of walking without assistance, exercise should be fully encouraged in the house, with toys which require active movements, but more especially in the open air, when the climate and temperature are otherwise suitable.

I have frequently noticed with considerable apprehension the manner in which nurses frequently lift children up when

they have fallen, or even assist them down stairs, by lifting the children by one of their arms, and thus hoisting them on or off their feet. It is perhaps the most frequent cause of dislocation at the shoulder or other joint, not to say fracture of the bones, and is a practice which cannot be too strongly condemned. Nobody would think of lifting an adult in such an unceremonious manner, but in these it would be a far more reasonable procedure than in young children, whose bones are unformed, and whose joints are weak and undeveloped.

It is impossible to lay down any stringent rules as to the amount of exercise necessary: nature and common sense dictate to us the quantity which is desirable in any individual case. Healthy children are usually so active and full of energy, that it is more commonly necessary to restrain than to encourage them in their play; and any undue exercise is naturally checked by the fatigue which it causes; and fortunately any error which may be indulged in from undue exercise is popularly known to be "an error on the right side." Disinclination for play or exercise of a child's muscles should be looked upon with apprehension; there is generally some reason connected with the child's health which prevents it from indulging in such healthy movements.

CHAPTER VI.

CLOTHING AND WASHING.

IT is by no means an uncommon idea with many persons that we wear clothes to make us warm, and that most savage tribes do without them because the tropical climate and temperature warm their bodies suffi-

ciently without any artificial help. Although there is some truth underlying these opinions, it is not the correct explanation of the use of clothes. They do not supply heat in any way to the body, but merely prevent an undue loss of heat from its surface. The sources of animal heat in the body are various: food supplies it to our system by becoming oxidised or burnt, much in the same way as coal becomes oxidised when burnt, as in a steam-engine. The processes are fairly analogous. Our bodies are constantly losing heat from the surface by radiation, or it may be by conduction, and it is the purpose of clothing to prevent as much as possible undue loss by the latter process. Hence our garments are made of materials which are bad conductors of heat,—such are all woollen fabrics; flannel, moreover, has the important property of absorbing moisture.

The temperature of the body is a little over 98° Fahr., as before mentioned, and the atmosphere which is perhaps most suited for young children is somewhere between 55° and 65° Fahr., hence it follows that, unless the child has an enormous power of manufacturing and storing animal heat, its temperature will be reduced considerably lower than the normal, and this will be at a great risk of life,—indeed, in the case of young children such a reduction is incompatible with life.

This animal heat is distributed throughout the body by the blood-vessels, which contain a fluid somewhat higher in temperature than that of the body, and this is circulated freely and rapidly through every part of the body like a system of hot-water pipes.

Food, then, is the main manufacturer of animal heat, the blood-vessels are its distributors, and the surface of the body is the main source of the loss of heat. In order, therefore, to maintain the bodily temperature economically, we must diminish this loss by the application of some non-

conducting material to the cooling surface. In children this surface is far greater in proportion to their bulk or weight than in adults. By economising the animal heat, we therefore, to some extent, economise food. People eat less in summer than in winter, partly because the system requires less to maintain this heat, and in cold countries it becomes essential for people to eat special articles of diet, such as fat, because of their heat-producing properties.

In our variable climate the chief function of clothes is thus to regulate the loss of animal heat from the surface of the body; hence in cold weather, flannel is advisable to be worn next to the skin, because of its porous nature and of its capacity for entangling air between its meshes, for air is a very bad conductor of heat. It is also for this reason that children prematurely born are often kept for some days enveloped in cotton wool, for in them it is necessary to prevent as much surface-cooling as possible, and to economise their limited heat-producing powers, if we are to keep them alive.

From these considerations, we are naturally led to that of the material of which it is advisable to make the under-clothing of children. Linen is very commonly used to wear next the skin as a chemise for infants amongst the well-to-do: its chief recommendation to such people seems to be its costliness; there is perhaps one virtue besides, viz., its softness, but this quality is far out-stripped by many bad ones, viz., its relatively large power of conducting heat and its poor absorbent power. In these respects it is much inferior to cotton. Cambric is very often used, and is not objectionable. Longcloth is preferable to calico, because of its even texture, and if the child is at all delicate a soft, thin flannel is the best material to be worn next the skin.

As regards the arrangement and cut of the articles for infant's dress, one would imagine that these would hardly

come within the province of Fashion, but, strange to say, even these are, and have been, very materially modified by the ever-changeful habits instigated by the caprice of parents. Thus twenty years ago the "cap" was considered one of the most important articles of an infant's dress for the first two or three months of its existence; and it was said to be a most dangerous and mischievous procedure to allow an infant to be without its flannel cap at any time, day or night. I have known them to be strongly advocated on strong anatomical and physiological grounds, the most important of which seemed to be the protection from pressure of the fontanelles, or unclosed portion of the skull of an infant: if such is their chief use, their material should be of tin or cast-iron, for nothing short of some such unyielding substance can satisfactorily answer this purpose.

Caps are fortunately, nowadays, the relics of a bygone fashion; they are rarely required in the nursery. The modern head-flannel is its more rational substitute. This is lightly thrown over the head when the child is carried from one room to another, or where it is in any way liable to be exposed to a draught. The maxim, "keep the head cool and the feet warm," is a good one, and more scientific; and as regards the former half, nature indicates such a suggestion by leaving the head uncovered with hair for some months, and we should not contradict nature by providing the child with a woollen wig as soon as it is born.

The linen chemise is, I think, also a very unnecessary garment for infants. It is neither warm nor neat; and its sole recommendation, softness, is generally annihilated by its being made wide enough to enclose about three ordinary babies, so that the superfluous linen is folded up into numerous creases, which the infant would probably describe as decidedly uncomfortable could it but speak to us of its feelings.

The robes and under-robes should be loose, warm, soft, light, and clean. They should be made to fasten with tapes rather than with pins. They are generally made too long during the first few months, and extra length means extra weight, especially as a large quantity of starch is often lavished upon the outer robe, when the infant is exposed to the gaze of inquiring friends or brought into "company." The so-called half-robes are quite long enough to protect the feet and lower parts of the body from cold, and exercise of the legs is almost impossible between two or more layers of well-starched linen; and if this garment is drawn into hard ridges at the neck and arms, as it is often the case, it becomes still more a "sore subject," and a source of constant irritation to the delicate skin.

It is advisable to have every article of the infant's dress made to fasten in front, so that the process of dressing and undressing may not involve the constant turning of the child over and over, from back to front, but may be easily accomplished while it is lying comfortably on its back. All articles should be well aired and opened out before they are put on: that this is most important will be readily admitted. Night-gowns should be looser and lighter than day-gowns, and care should be taken that every article of clothing is changed at night before the infant is put to rest.

As children grow older the process of shortening, or "tucking" as it is technically called, becomes necessary. This is often done at a stated period of the child's life, generally about the third month, regardless of the state of the weather, and of the child's condition and development.

This is very injudicious, and is productive of more mischief from cold than is commonly supposed. Short frocks, with very short sleeves and low bodies, following suddenly, perhaps in cold weather, upon the high-bodied, long-sleeved, and very long-skirted gowns, are often the cause

of severe colds and inflammatory diseases in infants. Such transitions, therefore, should be made gradually, with due regard to the state of the child and that of the weather; and great care is especially needed not to expose the upper part of the chest, in order to "harden" them, as nurses will sometimes tell you. A few children may resist the hardening process, but the majority will not, for the power of resisting cold in young children is very feeble, and the fact of a few being sufficiently strong in constitution to resist such exposure is no argument in favour of such a mischievous practice. Some children grow healthy in spite of, rather than in consequence of, such treatment.

When children are still older and able to run about, they become still more the prey of Fashion,—that unhygienic monster which rules the civilised world; and little ones become frequently tortured with the best and kindest intentions by well-meaning but ignorant parents. Little boys are dressed up in all sorts of fancy costumes,—a diminutive sailor with exposed chest perhaps, or an embryo Scotchman with bare legs, or later on, at school, in a tall chimney-pot hat, like the young Etonian, or without any hat at all like the Blue-coat boy;—such are a few of the endless vagaries to which children are subjected by fashion or custom. We are such creatures of habit, and so conservative in these habits, that it takes years, nay centuries, sometimes to overcome even such as are manifestly grotesque or positively mischievous. It really does not much matter what is the shape of young children's clothes, provided they are sufficiently warm, and all parts are adequately and uniformly protected from external cold. They should never be in any way heavy or cumbersome, and care should be taken to make them loose, so as to afford perfect freedom of movement.

Little girls should not be put into stays or have them-

selves pinched with the view of "forming the figure" later on in life. If the folly and vanity of young women lead them to torture themselves by screwing their waists into corsets six inches or more smaller than nature has intended their circumference to be, such folly amounts to cruelty when the hideous practice is commenced early in life in order to deform children into a "good" figure. Their clothes should not ordinarily be made of any material which may spoil by childish romping, or trimmed with any superfluous millinery which may tear or become damaged during their play. It is generally considered proper for a boy to tumble and romp about as much as he likes, and his clothes are such as admit of rollicking or even boisterous play; but if a little girl joins in her brother's game, she is often reproved, and called a "tomboy": it is not deemed lady-like. This is a great mistake, for young children of both sexes should have equal licence to play about to their heart's content. There should be no difference or restraint in this respect in young children, whatever their sex, while yet under the nurse's supervision.

A word in conclusion about boots and hats. The former should be of soft leather or kid and well-fitting. On no account are tight boots permissible. The bones of the feet are slow of development, and in childhood are in part cartilaginous and soft; and any pressure, apart from the obvious discomfort and restraint from exercise which they cause, very readily causes deformed and ill-shapen feet, which are the source of considerable trouble in after-life. Take care also that they are at once removed if they become wet or damp, from the propensity which children have for wading in puddles, or walking on damp grass, or in the sea. It is a popular superstition that sea-water does not give cold: I would not advise any one to try the experiment. It has been said, and I think with some justice,

that it is better to go without boots, than to have them wet. If the boots get wet, the stockings should always be removed at the same time, as these are almost sure to have absorbed some of the moisture, even though they do not feel damp to the touch.

As regards hats, little need be said. They should be light and not too warm. In summer they should be made preferably of white straw, and with a brim wide enough to shade the eyes effectually. It is often very pitiful to see children on a bright, sunny day, screwing up the eyes and making grimaces, in consequence of the glare becoming painful to them. If the eyes are not well-protected from strong light, they are sure to become weak, if not acutely inflamed, by the irritation which such exposure must naturally cause.

Washing children is at least equal in importance to clothing them, for cleanliness, we are told, is next to godliness.

At no period of life is the duty of washing thoroughly so necessary as in infancy and childhood.

The skin has many important functions to perform, and it is everywhere studded with minute glands for their performance; and it follows therefore, that if these be clogged with dirt, the skin becomes unable to secrete, and the irritation caused by accumulation of filth speedily induces grave constitutional disturbances. If we were to *varnish* a child we should very speedily kill it, but dirty people allow them to be covered with a coat of unhealthy pigment, which acts, though to a less extent, in the same mechanical way, by blocking up the "pores" of the skin, as the orifices of the sweat-glands are not inaptly termed, and thus upset the harmonious working of the secretory organs of the body.

The warm bath should therefore never be omitted, and every day, both in summer and winter, the child should be

placed in its tub and thoroughly washed all over with soap and water.

The water should be about the temperature of the child's body, from 95° to 100° Fahr. Merely placing the hand in the water is not a reliable guide to its temperature by any means, so that the heat of the bath should be determined by a bath-thermometer. If a child is placed in a bath that is too hot, it will not readily forget it, and such a mistake often engenders an antipathy to the bath which is most important to avoid. If from other causes children show an aversion to the bath, it is a good plan to cover it with flannel or a large towel, and placing the child on this, lower it gradually into the water; the object of this being to avoid frightening the child by its seeing the water, for it is more frequently the sight of the bath that is the chief objection to be met.

Do not let the child remain too long in the bath at a time, five minutes is quite long enough; if left in longer the nerve-centres become depressed, and harm may result. The child should not be bathed on an empty stomach, nor on a full one. It should have a little light food given about an hour before the bath. Soap, if used, and it is generally necessary, should be pure and soft, *i.e.*, should not contain an excess of alkali: glycerine soap and Castile soap are useful. Many special soaps are sold for the purpose of nursery use: I need not mention names and add to the already too numerous advertisements of the manufacturers. As children get older, it is useful to accustom them to a tepid sponging after the warm bath; the reaction after this is rapid and very invigorating, and will soon get appreciated.

Children cannot stand the shock of a cold bath—its primary effect is too depressing. Tidman's sea-salt is often a useful adjunct to the bath—it is stimulating and invigo-

rating to the skin; it should afterwards be sponged off with ordinary water, as it is otherwise liable to render the skin sticky. A moderate and gentle friction is sometimes beneficial, but care must be exercised, as the skin is very delicate in early youth.

The whole process of bathing should be rapid, the skin quickly sponged, and afterwards briskly dried with a warm, soft towel. In winter it is advisable to administer the bath in front of a fire, so as to avoid a sudden chill. In summer, a cold or tepid bath may be given to children three or four years of age, but the temperature of the bath should never be lower than 60° Fahr.

The child should be immersed in the bath, leaving only the head and shoulders outside; the head and face may then be soaped, but care must be taken not to let the soap get into the eyes or mouth. It is often advantageous for babies to give them a morning and evening bath; they will often sleep better after a second bath at night.

Nurses should be careful to wash the folds of joints, and see that these are thoroughly dried, and afterwards dusted with violet powder, or preferably with Sanitary Rose Powder. Another point to be observed, while on the subject of cleanliness, is to see that napkins are at once removed after being soiled or wetted with excreta, and the parts should then be washed carefully, dried, and dusted as before, or if there be any eruption from irritation some bland, greasy application, such as vaseline, is often more efficacious than dusting.

From the above remarks respecting the cold bath, it will be inferred that sea-bathing is not advisable for young children under four or at least three years of age. After this period, if the weather and sea are warm, an occasional sea-bath may be beneficial; but children, being very impressionable, must not be dragged or forcibly put

into the sea, screaming with fright as they often do, lest their nervous system receive too great a shock. Considerable harm is frequently caused by neglect of such precaution.

CHAPTER VII.

PREVENTABLE DISEASES OF CHILDREN.

WE are told that the "days of man are threescore years and ten," on the authority of the Bible; but in the gospel according to the Registrar-General,—if one may say so without irreverence,—we are assured that nearly a quarter of the children born into this world do not live so many weeks.

It becomes, therefore, a question of vital importance to inquire very closely into the causes of such a heavy death-roll, the diseases which lead to such fatal ends, the causes which result in the maladies, and, last but not least, how far these causes are preventable in our present state of scientific knowledge and sanitary administration. This is the subject-matter of thought which should be uppermost in the mind of the sanitary reformer.

Statistical accounts of the death-rate tell us, in no uncertain voice, that a very large percentage of these fatalities are the outcome of bad management, bad air, bad food, bad clothing, and generally bad sanitary arrangements.

I have tried, in the preceding pages, in some measure, to point out some of these evils, and their remedies, in a general way, and am now anxious to descend from the general to the particular, by enumerating a few of the

diseases incidental to babyhood and early childhood, selecting preferably those whose etiology, or causation, has been traced to one or more of the above defects in our nursery hygiene. It is, however, often necessary to carry our investigations further, in order to trace out a numerous and important class of diseases, which are transmitted from parent to child,—for diseases, like features, have a strong tendency to be reproduced in the child, and this tendency is known under the name of "hereditary predisposition." Those constitutional predispositions to disease which are due to this cause, and which become apparent in the young child, are scrofula, tubercle, syphilis, and rickets.

These diseased conditions are so often met with in children, and they are so very serious in their workings and results, that it will be instructive to know how each is recognised, and how far we are enabled to prevent their manifestation; or, having appeared, how far it is possible to hinder progress in the individual cases as they arise.

Scrofula, or *Struma*, is sometimes known better as King's Evil, and is one of those constitutional peculiarities very commonly met with in children, which may be inherited from the parents or acquired by the child through neglect of its guardians, in matters of food, fresh air, and other necessary conditions of healthy life. Special preventive measures are therefore necessary when such tendencies threaten, and still greater precautions become essential when the constitutional peculiarity, or "diathesis," as it is termed, is known to exist. What, then, are the distinguishing features of Scrofula? Children suffering from it are thin, pale, and flabby, with round faces, misshapen heads, and prominent foreheads. They have irregular, decayed teeth, thick lips, narrow and deformed chests, and large abdomens, and they have a great tendency to diseases of the glands of the neck, of the bones

and joints, and of the eyes. The disease is most common from the third to the seventh year.

The results are often traceable in the parents, either by one or both of them having evident signs indicative of scrofula, or of syphilis, from which it sometimes originates. If the mother is the cause of this hereditary taint, she should not be allowed to nurse her child, which must either be fed by a healthy wet-nurse, or very carefully brought up on cow's milk. Particular care must be taken to avoid overcrowding in nurseries, as plenty of fresh air is required, and sea-air is beneficial. Flannel next the skin is advisable. Damp and low situations must be avoided.

Medicinal treatment, with iron tonics and cod-liver oil, is very helpful, but must be continued for some time, as it is very tedious and uncertain in its duration. If the disease exists in the mother, she may, to some extent, modify its appearance in her offspring by careful attention to her health during pregnancy; but a great deal may be done to counteract hereditary influence by the above-mentioned hygienic precautions.

Tubercle.—Although not specially a child's disease, yet it very frequently manifests itself in very early life, as may be gleaned from the fact that 2,500 children die annually in this country before reaching five years of age, from this disease affecting the lungs as pulmonary consumption. It is allied to the other diseases we are considering; and, in after life, the seeds of tubercle, most commonly sown in infancy and childhood, become so developed that from forty to fifty thousand of our fellow-countrymen and women are killed by it every year. I have thought it would be a serious omission to pass it over unnoticed.

The distinctive features of tubercle are very different from those of scrofula. Thus, tubercular children are

bright and sharp-looking, with long faces, thin lips, pale, transparent skin, the eyes dark and bright, with dilated pupils. The body is thin, the bones hard and straight, and the abdomen contracted. Teething is generally commenced early. Such children are also bright intellectually, and older than their years in habits and mind. Although hereditary influence is a very important factor in this diathesis, we must often look elsewhere for the causes of this disease than this predisposition, for not more than a third of the cases we come across can be traced to this influence; and there is sufficient evidence to prove that a large number of the sufferers from this disease are the victims of bad hygienic management in infancy and childhood; also that such mismanagement causes the hereditary influence to become developed in a manner far more rapidly and severely than would be the case under more careful treatment. The disease has, in cases where skilful sanitary precautions have been taken, remained in abeyance, though the parents were undoubtedly tuberculous. For its prevention, therefore, we must be exceedingly cautious to ensure the before-mentioned healthy surroundings, taking especial care to avoid cold, all bodily and mental excesses, to have the chest well protected by flannel, and, if possible, residence in a warm, dry climate. Young children having a tuberculous tendency generally exhibit a loathing for fatty food, though such a diet is particularly beneficial for them. Cod-liver oil is exceedingly useful for them, taken rather as a food than a medicine; and, if they cannot or will not take this, Devonshire cream is an admirable and very palatable substitute. There are lots of messes commonly sold as Devonshire cream, containing lard, starch, flour, and other adulterations; so that, in order to be sure of getting the proper article, I would advise mothers to write and arrange for a regular supply sent by

parcel post two or three times a week, in tins, from some reliable farm or dairy in Devonshire or Cornwall. I have tried this plan, and have found it answer admirably; and the cream thus obtainable is fresher, better, and decidedly cheaper than that sold in pots, at the poulterers' or greengrocers' shops.

Syphilis commonly manifests itself in the infant during the second or third month of its existence. Numerous explanations have been suggested as to its occurrence from the infection of the father or mother. One of the first manifestations is what is known as "snuffles," a peculiar noise made in the nostrils during respiration, and the cry of the infant is an unpleasant, hoarse squeak. The skin becomes subject to copper-coloured blotches about the lower part of the body; the child becomes fretful, and rapidly emaciates, and the face often becomes so wrinkled as to resemble that of an old man. The child is almost invariably crying, and looks intensely miserable, which it doubtless is.

Although a great deal can be done by way of moderating the severity of such a terrible disease by sanitation, and though it is, to some extent, preventable, by cautioning the father or mother against marriage while either is suffering from the disease, it is seldom that one is asked for advice on such a point, notwithstanding that it is pretty well known amongst the more intelligent people that such disease will cause such effects in the offspring, if there be any. So that all one can do is to prevent the disease from getting worse by arresting its development by skilful and persevering medication. Mercury is generally the "guardian angel" of such infants, and under its influence they often speedily recover, given internally as medicine, or rubbed as an ointment into the skin. Otherwise, perhaps death is a more merciful termination, for it is one of those

subtle maladies which poisons the blood, often, for life, and is carried down to the children of the third or fourth generation.

Rickets presents well-marked external characteristics, and a tendency to certain peculiar manifestations of disease. It most commonly shows itself in a child aged from six months to two years. The face is generally pale, but plump and broad. The head is large in proportion to the face, is flat and mis-shapen, the fontanelles (openings between the bones of the skull) widely open, and the forehead prominent. The chest is flattened at the sides, and the breast bone pushed forward. The wrists and ankles are large and swollen, owing to the bones being late in development. The teeth are cut late. The bones are soft and cartilaginous owing to the lack of the earthy constituents, hence when the infant begins to walk, the legs become bent under the weight of the body, and often the spine becomes curved. This defect in the process of bone formation is the leading characteristic of the disease.

Rickety children are usually good in the nurse's sense of the word, *i.e.*, not addicted to fretting or crying like the syphilitic child. They will sit propped up in bed, or on the floor, from the inability to support the weight of the body, even in its mother's arms, and remain quiet for hours together, not wishing to be moved, owing to the tenderness or soreness which such movement usually involves. When asleep they will often kick off the bedclothes, and perspire very freely about the head. But I have said sufficient about the characteristics of this disease, and must particularise the causes, so as to emphasise the preventive treatment. Although far more common amongst the poverty-stricken community, it is by no means confined to these. It is undoubtedly inherited from the parents of scrofulous habit, to which it is somewhat allied ; syphilis is

also a predisposing cause. But it is a disease which is perhaps more frequently acquired from improper feeding, bad nursing, impure air, and general want of cleanliness. Poverty of blood in the mother, which causes the milk to become poor and unsuited to the infants' wants. Feeding the child with bread crumbs, soaked biscuits, baked flour, and such food as is utterly unsuited to its powers of digestion and assimilation. Prolonged lactation is also a fruitful cause; I have often known mothers say that their child was so weakly that they were afraid to wean it, for fear of making it worse, and so they suckle the infant on the watery secretion, which they think is good for the child, for eighteen months, or may be two years, thus confirming or aggravating the disease tenfold. Such being some of the most important causes of rickets, it does not need a very astute mother to discover the remedies. A carefully regulated diet, a well-ventilated nursery, with plenty of fresh air, strict cleanliness, and proper clothing; if all these hygienic measures were carefully and intelligently carried out rickets would speedily become an unknown disease.

I shall never forget the able and instructive clinical lectures on rickets, which I heard delivered some years ago by Sir W. Jenner, who is perhaps the greatest authority on the subject, and I cannot refrain from quoting some short paragraphs of his classical monograph, which have reference to its prevention.

"First among preventable diseases I will place one the mortality from which, in London at least, is so great as beyond question to swell largely the death-rate of children under two years of age, and yet one that has no place in the Registrar-General's returns; I mean *rickets*, the English disease as it was formerly called."

"To teach young girls how not to destroy their future children, is surely as important as to teach them much of

what is now considered essential for them to know. I would have an infant nursery attached to every national girl's school, so that the girls might be practically taught how to fulfil their practical duties to their family and to society."

"Diffusion of practical knowledge is the great preventive remedy of rickets. Law can aid in the spread of that knowledge, and society, if it did its duty, would remove the subsidiary causes of want of light and over-crowding. Inevitable poverty might possibly still keep rickets in a grave form among us; but were rickets kept within unpreventable limits the death-rate of infants in London would be perceptibly diminished."

This was written a quarter of a century ago, yet comparatively little has been done to stem the tide of decease from these diathetic diseases, which, though they present some points of similarity, are yet in most respects widely different and even antagonistic.

The importance of considering the causes of such disease, which generally give the key to their prevention, cannot be over-estimated; for not only are the diseases themselves the cause of a very large mortality, but the influence which the constitutional weakness has upon other acute diseases of children is extremely fatal. At the same time the diathetic state predisposes children, not merely to such diseases, which are the actual consequences of that state, but to any other morbid influence to which the infant may be exposed at any time. Thus, if we take the large class of nervous diseases to which infants and young children are so peculiarly liable, owing to the rapid development of the brain, and to its complicated and delicate structure, whether it be inflammation of the substance of the brain in its various forms, or its membranes, water on the brain, hydrocephalus, inflammation of the spinal cord, and

look into their causes, in the vast majority of cases we find one of the diathetic diseases, viz., tubercle, forming an important factor, and the same may be said of the diseases of the respiratory organs.

Seeing, then, that these diatheses are preventable, in most cases, by strict attention to hygiene in the first few years of life, one cannot cease wondering why such little heed is taken by the public to the lay-sermons and writings of those whose duty it is to preach the gospel of health.

May be in years to come the work of the physician will be almost entirely confined to the prevention of disease, rather than its cure. At present such work is to a large extent eleemosynary, and the medical profession is not sufficiently encouraged in this work; indeed the public would be the gainers in this respect, if the Japanese fashion of paying their doctors only when they are well, and ceasing all remuneration during sickness were to be imitated in England. The saying that an "ounce of prevention is better than a pound of cure" is acknowledged in thought and word, rather than in deed, and until there is a closer affinity between the brain and the pocket of the laity, the functions of the physician will be curative rather than prophylactic.

CHAPTER VIII.

THE INFECTIOUS DISEASES OF CHILDREN.

THE infectious fevers, still so common amongst children, and so fatal, are all more or less preventable by proper sanitary precautions, and, in this

chapter, I purpose to briefly consider the steps that are considered necessary, in the present state of our knowledge, to prevent their spreading, by means of isolation, disinfection, and other methods of diminishing their frequency and virulence amongst our infant population.

The Public Health Act of 1872 has done a great deal towards the sanitary supervision of our country, by the establishment of a system of Government inspectors, to inquire into and report upon the health of the community in various districts, and to enforce any breach of sanitary discipline by punishment of the offenders; but it is still a very imperfect system in many districts, and will continue to be so until the public is better educated in matters of personal and domestic hygiene.

Great things have been done in the past, by way of sanitary reform, in respect of epidemic diseases, thus the plague has practically disappeared. Cholera has not been epidemic amongst us for nearly twenty years, and it is to be hoped that the present Continental epidemic may be guarded from us by efficient sanitary precautions. Small-pox bids fair to become a disease of the past; but there is a large class of infectious fevers, termed "zymotic diseases," which is still rampant, and must be combated with all the machinery of our scientific warfare.

The principal infectious fevers which we have to consider as being more or less common amongst children, are small-pox, scarlatina, measles, whooping-cough, diphtheria, and, to some extent, typhoid fever.

Variola, or small-pox, is by no means confined to children, although it is more common in the first few years of life, than in any like period in after-life. About one-half the number of cases are estimated to occur in young children, and it is far more fatal in these than it is at puberty or afterwards.

The only certain means of prevention is by vaccination; but notwithstanding the overwhelming evidence there is in proof of this fact, a very large proportion of the British public do not believe it, or profess not to do so, and if the Compulsory Vaccination Act were repealed, many thousands, nay millions, would fail to bring their children to have them vaccinated. They submit to it now under protest, and beg to be let off with half the number of marks necessary for their protection. I do not wish to bring forward here any arguments as to the value and efficiency of vaccination in the prevention of this loathsome disease, but would ask those who are sceptical or indifferent on the subject, to read that admirable essay by Mr. Ernest Hart, on "The Truth about Vaccination," or the excellent article on this subject, to be found in that compendium of information, "Whittaker's Almanac."

Those in charge of infants, then, should not, in any way, interfere with the effectual performance of this necessary little operation, for, if it does not afford complete immunity from the disease, it so modifies the attack, that it runs a very mild course, and is not usually followed by that horrible disfigurement which follows a severe attack of the complaint, and if small-pox should appear in the neighbourhood, all infants should be at once vaccinated, if this has not been already done, and all older children should be re-vaccinated, so as to enhance its protective influence.

All infectious diseases have what is termed their period of incubation, *i.e.,* a period of latency between the time of exposure and that of appearance of the first symptoms,—just as vaccination takes three or four days before its effects become at all manifest. It is of importance to remember this fact, for if children have been exposed to the risk of infection, they must be kept under surveillance till the end of this period of incubation, and we then have the satis-

faction of pronouncing the child safe, provided, of course, it has been kept properly isolated.

This period in the case of small-pox is from ten to fourteen days, which is important to note, as we can thus re-vaccinate, with benefit, knowing that the period of incubation in the latter case is less than in small-pox, so that we can overtake it, and thus moderate its severity.

There is no infectious disease which is so powerful, and so sure, as small-pox. It has been known to be carried across the street, and from house to house, by the wafting of the poison, which is exhaled with the breath, by the skin, and secretions generally; so that no person in the least susceptible is safe from risk, after entering an infected house.

I will mention some general precautions with regard to its spread, in common with other infectious fevers, after I have briefly commented upon each.

Scarlatina ranks next perhaps to small-pox in its virulence and contagiousness. It is a popular belief that it is only a mild form of scarlet fever. This is a mistake; the terms are synonymous. If scarlatina is less virulent than small-pox, it is perhaps even a more subtle and lingering poison, and the disease is one which is far more common in childhood, three-fourths of the deaths from this cause occurring before five years of age, and the mortality under that age is about one in ten cases. It has been shown that one special method of its infection is by the minute scales, which peel off from the skin, and which are scattered by the wind to all portions of the room, carrying with them the infectious poison. But it is given off from the body by other means, as the breath, &c. The disease has been traced to infection through the milk-supply; to laundresses whose children are suffering from the complaint; and it is supposed to originate in some

cases by escape of sewer gases, or other decomposition of organic animal matter. The period of incubation is short, from a few hours to seven days, rarely longer. Though it rarely occurs more than once in the same individual, it may appear twice, or even three times.

A child should not be pronounced free from infection until every trace of the peeling has disappeared; and it is safer to allow a fortnight, at least, afterwards.

Measles is still more peculiarly a disease of infancy and early childhood, nearly nine-tenths of all cases occurring under five years of age, but adults may have it. I remember a fellow-student in London, living in the same house with me, catching it from a hospital casualty patient.

The period of incubation varies from a week to a fortnight. The disease is communicated by means of the clothing, bedding, and other articles in the bedroom. The poison is very active, and is most powerful during the eruption which occurs; it is sometimes carried a considerable distance. Isolation, disinfection, and other precautions must be insisted upon, as afterwards mentioned.

Whooping-cough is exceedingly common in childhood; so much so, indeed, that some mothers consider it an inevitable disease, like measles, and even expose their children to its infection, so as to "get it over"; but where such ignorance and mischievous belief prevails, any attempt at precaution must be futile. Although the nursery is the principal habitat, the hotbed of all the zymotic diseases, it should be distinctly known that no child is bound to have any one of them, that their presence often means carelessness or neglect of the laws of health.

Although so common a disease of childhood, adults may and do have whooping-cough; thus, a few years ago, Sir W. Jenner suffered from an attack of it, and about the

same time I was attending a lady over seventy years of age, who also had it.

It has a period of incubation of about a week's duration, and the infective poison is conveyed by the breath principally, but may be carried about by bedclothes and wearing apparel. Ordinary disinfectants do not seem to have the power of destroying the poison. Isolation of other children is the chief safeguard.

Diphtheria is also pre-eminently a disease of early childhood, most cases occurring from two years of age to ten years. There is some diversity of opinion amongst medical men as to the identity of this disease and croup, or, as it is sometimes called, membranous croup. The general consensus of opinion is in favour of their identity. A large number of diseases commonly go by the name of croup, such as bronchitis, accompanied by a peculiar stridulent or "croupy cough"; spasmodic croup, or crowing breathing, as it is sometimes called. These are not infectious.

True membranous croup or diphtheria is a very infectious and very fatal disease. Its period of incubation varies from two days to a week. It is sometimes associated with scarlatina, which it resembles in some particulars, much in the same way as scarlatina and measles are sometimes associated, and the hybrid disease is in this case known as German measles, or Rötheln. It has been thought that the diphtheritic poison is due to some vegetable germs or parasites, to which the term "bacteria" has been given; but this theory rests on a very unsound basis at present. It is a disease of which, in very many cases, it is peculiarly difficult to trace the origin. It has been known to be communicated through milk, and defective drains, polluted water and air have also been proved to be a cause; but the breath and excretions of a person suffering from the disease are the most potent causes, so that attendants on

the sick should be extremely cautious about kissing the little invalids, and no less careful to destroy by burning or thoroughly disinfect all rags or pocket-handkerchiefs used by those suffering from it.

Typhoid fever, although not specially a child's disease, is by no means infrequent between six and twelve years of age. It is known by the synonyms gastric fever, enteric fever, and low fever. It is not a very infectious disease, but is doubtless communicable, and may arise—indeed, frequently does—through defective drains, and generally by decomposition of animal or vegetable matter, frequently through drinking water in which these are dissolved, and occasionally through the milk-supply. The period of incubation is from a fortnight to three weeks. Defective drains and sewage gas being the frequent cause of this disease, it becomes a very important matter, if for this reason only, to see that the sewers are properly constructed, ventilated, and flushed; to have the soil-pipe terminating outside the house; and, in country districts, to have the cesspits, drains, and other causes of pollution carefully guarded as against contamination of the wells or drinking-water supply. Be very sure also that the overflow pipe of the water cisterns in the house terminates in the open air, and does not end in the soil-pipe, for to this cause alone many cases of typhoid fever have been clearly traced.

Remember, too, that the chief source of the poison exists in the discharges from the patient, so that these should be disinfected, and, if possible, carefully buried.

Having thus briefly noticed each of the principal infectious diseases to which children are more or less subject, it remains for me to give a few general directions for their prevention, or at least for that of their spreading.

Nurseries, especially public day nurseries, schools

tailors, dressmakers, laundresses are all common channels of infection, more especially, of course, the first two; nurseries and schools where children congregate together; and it becomes a matter of necessity to close these, if two or three cases of any infectious fever have been found amongst the little ones who attend them, for *prompt isolation* is the first golden rule.

The duty, then, devolves itself upon the parents, or superintendents of any of these establishments, to report to the sanitary authority any such outbreak, in order that steps may be at once taken to prevent its spread, by persons who are competent to deal with such matters; and I may here say that I think the compulsory notification of infectious disease should be enforced by every corporation or local board, so that the householder or the medical man in attendance shall notify every instance of infectious disease to the sanitary authorities, in order to ensure the sufficient isolation of the sick. I write this with some years' experience of its practical working. This separation of the healthy from the infected should be maintained for some weeks after the latter is, to all outward appearance, quite well again. It should also be distinctly understood that the degree of the severity of the attack affords very little indication of that of the infection which it may cause, and that many cases of the utmost severity have resulted from others comparatively mild. Though a few cases of infectious fever may originate, as is supposed, *de novo*,—that is, not from any traceable previous case,—the vast majority do come from a similar case of sickness somewhere, though it is impossible in all cases to localise its source. Hence it follows that, if the origin can be found out, no means should be left untried to search it out, so that others may not be the victims of its subtle virulence, and in order that the poison may be exposed and destroyed by cleanliness,

and by disinfection, and by information being spread as to the nature of the danger for its better avoidance.

Filth of all kinds, dust, impurity of water, unnecessary hangings of drapery, defective drains, and bad smells are all most carefully to be avoided, and special care should be taken that all articles, whether of linen or earthenware, if used by the sick, must be washed or disinfected before they are used by any other person.

Those in attendance on the sick should not mix with the others, as they often carry about some poisonous matter from the sick-room in their clothes, or about their person, which may be readily communicated to some third person. From this it follows that there should be some person who has no other duties to perform in constant attendance upon the sick, and that she should not mix with others while thus acting as nurse; and if she goes out, or when she is away from her charge, she should carefully wash herself with some disinfecting fluid, and change her outer garments, at least. Visitors should not, as a rule, be allowed admittance to the sick-chamber; but, if necessary, these should not handle, kiss, or go too near to the patient, and should, on leaving the room, use the same precautions as the ordinary attendant.

A sheet sprinkled with some carbolic acid or *sanitas* should be spread over the door of the sick-room, which should itself be kept pure as regards its air, and have saucers or trays with some disinfectant scattered about in convenient spots. Such disinfectants should be chosen as are free from odour, or at least any unpleasant smell. Children should not be allowed to go to a school or any public assembly from a house where infection exists, nor should servants be allowed to go to their homes.

After recovery, or death, the sick-chamber should be thoroughly fumigated and all infection destroyed, by

sending all bedding and other woollen articles away to some public disinfecting chamber, or, if possible, boiled, and exposed some time to the open air. The process of fumigation is a necessity after the more virulent of the zymotic diseases, and is generally effected by burning sulphur in the room, the resulting fumes of sulphurous acid gas proving a very effective antidote to the poison. From half a pound to a pound of roll sulphur, broken into small lumps, should be placed in a soup-plate, and thoroughly ignited by means of some methylated spirit poured over it. The plate should be placed in the centre of a room, preferably in a sponge bath in which there is about an inch of water. All metallic substances, such as the polished grates or bedsteads, or other articles which cannot be conveniently removed, or which are liable to injury, should be coated with a layer of oil or grease, as the sulphur fumes act chemically upon them.

Before setting fire to the brimstone, be careful to close all windows and crevices by which the fumes may escape, and make the room as air-tight as possible, and keep it thus closed for about five or six hours. After which, expose it for a corresponding period to a thorough draught, by opening windows, doors, fireplace, &c. The room is then ready for the paperhanger, to strip the walls and limewash the ceilings, and for the housemaid to wash the floors and furniture with solution of carbolic acid (1 in 40) and some disinfecting soap.

I will conclude this chapter by a few remarks concerning *disinfectants*, for a great deal of delusion is abroad as to their appropriate use, and the ignorant use too often leads to a false sense of security and protection.

We must bear in mind, first of all, that pure air is the best disinfectant, and that thorough ventilation is the best means of securing fresh air. We must not, however, be

content with merely getting rid of smells, which inform the senses that something is amiss with its purity. Nothing is gained, hygienically speaking, by cloaking an offensive smell by means of another which is not so objectionable to the nasal organ. Such a procedure is analogous to papering cracks in a wall, it will not mend matters, but only obscure them; so that substances which are only deodorants, must be eschewed, and avoided as a delusion and a snare, as they merely substitute an unpleasant sensory impression for a more or less agreeable one, but leave the injurious condition unaltered.

Disinfectants are substances which will act chemically or physically upon any injurious vapour or living organism, and will either prevent or check decomposition. People should not be misled with the marvellous effects attributed to certain nostrums which are nowadays advertised so freely as antiseptics and disinfectants, but trust rather to some well-known, reliable substance, or to a disinfectant which is recommended by a competent authority. The most reliable and available disinfectants are carbolic acid, which can be used as a powder, such as Calvert's Disinfecting Powder, or as a solution of various strengths, according to the requirements. Chlorine, as in chloride of lime, or chloride of zinc, which is the principal ingredient in Burnett's Disinfecting Fluid. Sulphurous acid, as in burning brimstone, or in a liquid, as in McDougal's Fluid. Permanganate of potash, as in Condy's Fluid, has very powerful oxidising properties, and is especially useful, in not being actively poisonous and in having no smell. Sanitas is also a valuable and agreeable form of disinfectant for domestic use. It must be remembered that disinfectants such as these are merely temporary expedients, and that, in order to act efficiently, they must be brought into actual contact with the infectious material,

and not merely sprinkled on the floor, thereby, it may be, creating a disagreeable smell, or scattered about vaguely in saucers. Nor must we forget that cleanliness and ventilation of the air, and of soil pipes and drains, the free use of water, by flushing or otherwise, are necessary adjuncts. To promote the special object of disinfection, that of preventing diseases by destroying their specific poisons, we must not overlook any little object, however unimportant it may seem, that may possibly be the habitat of any particle of such poison, and especially all discharges from the sick, and all articles which may be used to receive them or which may be in any way soiled by them. It is only by attending to such details that we can hope for success.

CHAPTER IX.

THE PERIOD OF DENTITION, AND MINOR AILMENTS.

THE process of teething in children is so frequently associated with many local and constitutional disurbances, that this period, and particularly that of the first dentition, becomes, perhaps, the most important and most dangerous trial which they have to experience. For these reasons special precautions are necessary to guide them safely through the dangers and casualties to which they are then liable. The first, or temporary set of teeth, commonly known as "milk teeth," normally commence their appearance by the eruption of the two front teeth of the lower jaw. These are usually "cut" when the child is about seven months old. Nurses often consider it unlucky

if those in the upper jaw are the first to appear, and particularly so if they cut them "across," as the irregular appearance of the milk-teeth is called.

The temporary teeth are twenty in number, and are called respectively incisors, canines or eye-teeth, and molars or grinders, and should all make their appearance in the mouth shortly after the end of the second year. The time of their respective eruption, in months, is according to the following scheme, borrowed from Sharpey's Anatomy:—

Molars.	Canines.	Incisors.	Canines.	Molars.
24–12	18	9–7–7–9	18	12–24

But great variations from this scheme are familiar to most people: thus, I have seen a child born with two teeth, and another in which three teeth were cut on the third day; and in other cases I have known them delayed, so that the first teeth did not appear till eighteen months, or nearly two years in one or two instances, and it is very common to have the completion of dentition delayed till the third year.

These variations very commonly indicate some constitutional weakness in the subjects of them, thus the rickety child is usually late, and the syphilitic or tubercular often correspondingly early in cutting the first teeth.

It is very commonly believed by the laity that dentition, if not itself a disease, is at least a direct cause of it. This latter opinion is endorsed by some members of the medical profession; but is, I think, an erroneous theory. Dentition I believe to be a purely physiological process, and the prevalent custom of attributing many diseases, or derangements of organs far remote from the teeth, to the

process of their eruption, is not only a mistake, but may be very mischievous and dangerous in preventing one from looking beyond the mouth for the real cause of the disease, simply because dentition happens to be a synchronous cause of some constitutional disturbance.

Difficult or abnormal dentition must then, I think, be regarded as a co-existing, or, perhaps, co-operating and predisposing cause of disease, rather than a direct or determining cause, one which produces a hyper-sensitive state of the nervous system, and possibly an increased blood supply to the nervous centres, thereby rendering these more prone to respond to the additional stimulus, which terminates in a diseased condition of the stomach or intestines, indicated by vomiting or diarrhœa, or of the brain, causing convulsions, &c.

Children who are quite healthy and strong often cut their teeth without any manifest disorder, or at least only a slight local irritation of the gums, so that to some extent uncomplicated dentition is a pretty fair test of the child's general state of health, and where any hidden tendency to disease exists, teething may be the means of unfolding to us such tendency and manifest this latency by producing some serious disease.

Usually, however, there are marked local symptoms, causing a temporary disarrangement of the infant's health, such as dribbling at the mouth, together with general restlessness, and irritability; in other cases the gums are hot and swollen; failure of appetite, either from the pain which the nipple causes, or from reflex; excitability of the stomach in more severe cases, the irritability is excessive, the child is sleepless, has a hot and dry skin, and is manifestly feverish.

When this restlessness is extreme, there are frequently other complications, referable chiefly to the digestive or to

the nervous system, either due to the "sympathy" or peculiar relation which certain organs exhibit towards each other, through the complicated mechanism of the nerves; or in others, probably the majority of cases, if we search into them carefully, we shall find that diarrhœa occurring during teething is attributable to other causes, as improper food, injudicious feeding, unhygienic surroundings and such like, and in the same manner convulsions during teething may often be traced to other causes, and is only exceptionally the direct result of the process of dentition, as, for instance, when several teeth penetrate the gums at the same time. Other more serious diseases such as acute inflammation of the brain and its coverings, infantile paralysis are more commonly coincidences than direct results, or are at least only remotely and subordinately connected with the process.

Certain skin diseases are frequently concomitants of teething, and here again proof is wanting to connect these directly with the function of dentition.

I have discussed the relations between dentition and disease at some length, because of its important bearing upon treatment, and more particularly upon preventive treatment, for one cannot logically follow out the latter, unless one is quite sure as to the cause.

Remedial measures must be directed to the state of the gums, and to the complications which so often coexist. With regard to the former, a ring or pad of india-rubber or ivory is a useful substitute for the thumb or fist of the child, which it is so fond of cramming into its mouth. Pressure by this means on the gums apparently affords considerable relief. Nurses will sometimes rub or scratch through a tooth with the finger-nail, or a thimble or ring. Such a practice is risky and wrong; for, if the tooth has not reached the mucous membrane, the irritation thus set up

is not only very painful, but may greatly increase the swelling and inflammation of the gums.

This naturally raises the question of the advisability of scarification of the gums with a lancet. It must be remembered that the effect of lancing only lasts a day or two, for the incisions speedily heal; this fact proves that the gum is not made tense by the pressure of the teeth, otherwise the wound would gape, and not heal so readily.

I think the gum-lancet is used more by the ignorant, who have not the capacity for correctly diagnosing any obscure disease, and who are glad to seize upon the gums, and treat these rather than the child, too often merely as a cloak for ignorance.

I do not by any means say that lancing the gums is unjustifiable; it is sometimes useful, indeed I think necessary. When the inflammation is considerable, the blood-letting is a very valuable means of relief, or if the child is in immediate danger of convulsions, also when the tooth is very nearly through, and the irritation more than usually severe; but I cannot help thinking that too much stress is laid upon the hypothetical tension and pressure of the teeth on the gums, as the cause of great constitutional disturbance, and I am strengthened in my conviction of this by the fact of the marked less frequency in the use of the gum-lancet in England in later days, and by that of the discouragement of the practice altogether by the highest authorities in France and America. Respecting the complications, or general symptoms, if there is diarrhœa it should be checked rather than encouraged, I think; though difference of opinion on this point also exists, owing probably to some regarding diarrhœa as directly caused by difficult dentition, rather than a coexisting disease, aggravated possibly to some extent by teething. Diarrhœa is a very exhausting complaint, as is seen by the rapid wasting which it causes in

infancy, and it should not be permitted, but kept in check by proper means, and the evacuations reduced to three, or at least four, a day. If the diet is carefully regulated and arranged the diarrhœa will often be subdued by very simple means, such as a little castor oil to expel the irritant, and a little chalk mixture with some mild astringent infusion. We find that diarrhœa is far more common during teething in summer than in winter, and is more profuse in damp weather than in dry. Scrupulous cleanliness and speedy removal of napkins is necessary, and the latter should be at once removed from the room. The child must be kept warm, and at a uniform temperature, and extra care must be taken about the purity of the air. In hot weather milk is very liable to set up fermentation, and in this case it may be necessary to substitute barley water, and weak veal or chicken broth, and it is better to feed infants more frequently with smaller meals.

As regards convulsions, we must not forget that it is a common symptom in nearly all diseases of the brain, so that all excitement should be avoided as much as possible, such as sudden noises, throwing the child up, or tossing it, exposure of the head to cold, or draughts, and generally bad hygienic management. It often runs in families, and is a common accompaniment of many diseases, and many little causes of intestinal irritation may cause them, as worms or constipation. If it should supervene, the friends will doubtless send at once for medical advice; but, until the doctor arrives, it is a good general plan to place the child in a warm bath, or at any rate to place the feet as soon as possible in hot mustard and water, and the application of a cloth kept moist with cold water to the head.

The eruption of the permanent teeth is not nearly so commonly associated with disease in children as the first dentition, although it occasionally causes considerable

derangements in the functions of various organs, which are frequently overlooked. Neuralgia, diarrhœa, and troublesome cough are often directly traceable to this cause. General hygienic management, and particularly abundant exercise and play in the open air, are probably the best prophylactic measures to adopt for the prevention of such diseases.

Let us now turn from this subject to consider a few of the minor ailments of children, which, if neglected or improperly treated, so often lead up to more serious ones; and, firstly, that common affection of the eyes met with in infants during the first few days of their lives, where the eyelids are puffy and swollen, and a thick purulent discharge escapes from underneath. It is a very easy condition to treat successfully, and yet if overlooked or neglected so frequently spreads to the eyeball, and causes irreparable danger.

It has been estimated that one-third of all the inmates of our blind asylums owe their loss of sight to this infantile ophthalmia. Often mere cleanliness, by causing a stream of warm water to run in underneath the eyelids, several times a day, so as to wash away this discharge, is sufficient; but it is better to add a little astringent, such as alum (five to ten grains to the ounce of water), and if this condition is not greatly improved in a day or two, medical help is necessary. The margins of the eyelids should be smeared at night with a little vaseline or cold-cream to prevent their sticking together, by the drying of this discharge. The treatment must be vigorously and regularly, yet gently carried out, by the nurse or mother, and the cure ought to be complete in a week.

Thrush is a very common complaint, the symptoms of which are usually too well known amongst nurses to need description. It is most frequent among bottle-fed infants, and those suckled from unhealthy mothers and nurses.

In most cases prevention is attainable by attention to the feeding, and cleanliness, respecting which, want of care is perhaps the commonest cause. It is a parasitic disease, due to the development of a vegetable fungus on the mucous membrane of the mouth, so that a mild "antiseptic" is indicated for its treatment. Borax is such an antidote, and it is far better to use glycerine, as a solvent, than honey as is commonly done; carefully wiping out the infant's mouth with a solution of borax in water or glycerine and water, by means of a sponge on a stick, or a camel's hair brush. A weak solution of permanganate of potash (Condy's Fluid freely diluted) is also very efficacious. A mild aperient is often advisable. It should be cured in a day or two.

Constipation is often a source of trouble and anxiety to mothers, and one of irritability and peevishness, if not worse, in the child, and is frequently very troublesome to cure. Careful dieting is far better than medicine, and the earliest indication of such a condition is important to notice and correct. Often this can be done by the mother attending to her own requirements, if she is nursing; or, if the child is bottle-fed, the substitution of a little fluid magnesia for lime water, or manna for sugar, in the milk, will be all that is necessary.

Inunction of castor oil, or its internal administration, syrup of senna, electuary of sulphur, rhubarb, and other such remedies, mild in their action, but too numerous to mention, are useful, if the other means fail. Pepsine added to milk, about two grains for a dose, frequently assists its digestion, and will thus cure some forms of both constipation and diarrhœa. Pancreatic emulsion, administered in the same way, is often equally efficacious. A small suppository of soap, or an occasional enema, is often advisable, but not too often, lest it become a habit, which may lead to weakness of the coats of the bowel.

Worms are often troublesome to get rid of, and may cause very serious symptoms. They are supposed to be introduced into the system, in most cases, by impure drinking water; and so we must look to this,—have it filtered, and, if necessary, first boiled, especially in summer months. They seem to prefer to inhabit the viscera of unhealthy children, or, at any rate, are more difficult to get rid of from bowels which are wanting in healthy tone; hence, we must first restore the latter by attention to the general health, and especially the *primæ viæ;* and, secondly, administer some drug to kill the parasites, and so expel them from the body. Threadworms are often easily expelled by an enema of salt-and-water, or of an infusion of quassia. If other worms are suspected or known to be present, ask your doctor for a remedy, rather than trust to worm-cakes or tablets.

I will conclude this chapter with a few words of advice respecting medicines and drugs commonly given to children, without the doctor's suggestion or order,—at least, without his oral suggestion; for, unfortunately, too many drugs are commended in manuals and text-books, for mothers to dabble with and dose their little ones, many of them powerful remedies, and equally potent in their mischief-making propensities,—such, for instance, as opium in all its forms, and narcotics generally; calomel, and other powerful purgatives, and all such strong remedies, which none but the doctor and chemist should be permitted to dispense, or administer. Parsons and their wives are rather noted for indiscriminate advice of this kind, from kindliness and charitable motives towards the parishioners. Let the West Maling poisoning case be a warning to such not to interfere with matters they little understand. Many mothers think it necessary to keep a medicine-chest in the house, for domestic use, and chiefly for use in

the nursery. They are often dangerous toys, and had much better be kept at the chemist's shop, if there happens to be one anywhere within a reasonable distance. Others like to dabble in "Homœopathy,"—"it is so very nice and handy for children," they say,—"no dispensing or nasty-tasting medicines, only some nice little sugared pilules; and a book to tell you which to give." This plan is less open to objection than the preceding, as no harm is usually done, even though the *wrong* pilules be given, through mistaken diagnosis, for the dose is presumably infinitesimal, and, for trivial complaints, or when the disease is imaginary, time is gained, and the "*vis medicatrix naturæ*," ever kind, completes the cure.

Another class of individuals glories in "quack,"—I beg their pardon, "patent,"—medicines, such as "Mother Seigel's" and "Mrs. Winslow's" Soothing Syrups, and the thousands of like nostrums, often highly poisonous, yet permitted to be sold by any shopkeeper to any person, provided the Government stamp be affixed. The practice is the most pernicious of all, a melancholy example of which came under my notice not long ago. The mother of a child gave the latter, who was suffering from a dangerous attack of bronchitis, "a good dose," as she expressed it, of one of these patent medicines, in order to "stop" a nasty cough, which had troubled the child for some days, and, as the child got worse, I was sent for, and found it half suffocated and gasping for breath. I tried to explain to the mother that the cough was Nature's means of curing the child, and that the medicine had deprived it of its only chance. It acted effectually in stopping the cough, also the breath of the child, for it died within a few hours.

For people who live in the country, far away from a medical man, or a chemist's shop, it is a more feasible custom to lay in a small store of simple remedies, in case

of emergency; but it is far better to consult their doctor as to what to keep, and what dose to give in cases of every-day complaints, rather than trust to manuals of domestic medicine, most of which attempt too much, or assume too much knowledge of the rudiments of human physiology, a subject of which the British public is strangely ignorant.*

Generally speaking, children are too much physicked nowadays; and if the laws of health, a few of which I have attempted to explain in the preceding pages, were more generally known, and more promptly acted upon by the parents, they would, in most cases, perform the functions of their own doctor, in a much more satisfactory manner, without having a "fool for their patient."

CHAPTER X.

CONCLUDING REMARKS.

THERE are a few points which I would add to the foregoing, by way of a miscellaneous chapter, or somewhat as a postscript,—remarks which, though last in point of order, are not by any means least in importance, but which have been omitted either from oversight or from their not falling within the category of any of the preceding chapters.

Firstly, then, a few words respecting alcoholic stimulants.

* Never give children nauseous drugs, but if possible add some palatable ingredient, and do not let the dose be too bulky. Above all do not administer nasty-tasting medicines in some favourite article of diet, lest it turn the child against its food, through suspicions of such admixture.

Is it advisable that these should be given to young children? and, if so, under what circumstances? In reading the varied conflicting arguments which are so often brought forward in condemnation of alcohol, or in approval of it, one often sees it called respectively a food and a poison,—which is it? One frequently hears the saying that what is one person's food is another's poison; and in this way alcohol may be said to act in the double capacity, like so many other substances. But it is frequently denied that alcohol is a food in any shape or form. To substantiate such a statement necessitates our restricting the definition of the word food within very narrow limits. Alcohol is undoubtedly oxidised or burnt in the blood, and to some extent promotes tissue change, and helps to support life; and any substance taken into the system, and having these properties, has certainly a claim to be ranked as a food. On the other hand, it is equally certain that it is a poison, inasmuch as a very little of it taken by persons unaccustomed to its use will produce poisonous or intoxicating effects, and comparatively small doses have been known to kill young children. It is, however, neither a valuable food nor a powerful poison, strictly speaking, but simply a stimulant to the circulation, and subsequently a depressant to the nervous system; though, as is well known, a large dose of alcohol may prove directly and rapidly fatal.

The important question, however, is whether it is a feasible article of diet for young children? In answer to this, I most unhesitatingly say, "No." Alcohol is very rarely necessary as an article of diet. People take it because they have acquired a liking for it, not because it does them good. Children have generally a distaste for it, and, despite this fact, parents often insist on their taking it, or at least encourage its use, from a mistaken notion that it gives strength. They should leave this to the medical

attendant, and regard it as a drug, to be used with the utmost care, and given only as medicinal treatment. The taste is unfortunately but too early acquired, and one cannot be too careful to guard against the commencement of habits which may, and which do, so frequently become injurious to the health, remembering always the well-known French proverb : "C'est le *premier pas* qui coûte."

To turn now to the subject of education of young children, at what age is it advisable to commence teaching little ones the rudiments of mental exercise? One frequently hears some remarkable instance of precocity in young children, in respect of their learning facilities; and these are occasionally held up as examples to backward children for imitation. It is well known that there is a very great diversity in the educational capabilities of the young; but all pressure or undue haste in early life is much to be deprecated. Between four and five years of age is quite soon enough to teach children their alphabet, and this should be done by means of large block letters, or toy picture-books. Short-sightedness is very common in children who begin their lessons too early in life, owing to the extra strain thrown upon the eyesight before this is thoroughly developed, or until the education in the proper use of the eyes has become completed. So that it is necessary to have the print sufficiently large, and the light good, if we would avoid the premature use of spectacles. Again, the lessons should be of very short duration at first; from half an hour to an hour is generally sufficient to begin with, and should never last longer than an hour at a time before the sixth year, and they may then be gradually lengthened as the child grows older, and its mental powers become more developed; but this period should never be longer than two hours without a break. In all infant schools, ample breathing space and floor-space should be allowed, and

all desks and forms should be adjusted so that the eye may be from ten to twelve inches from the book or slate; and the forms should have backs and foot-rests, as are now placed in all modern board schools; indeed, the luxuries which the poor now have in this respect often far surpass those of the upper and middle classes, who are in grammar schools or public schools; and many cases of spinal curvature are directly traceable to sitting long hours upon the old-fashioned benches, which were unprovided with back-rests.

From the intellectual training, it seems a natural transition to the physical education; the recreation and exercise of children are scarcely of less importance. Later on in child-life these form a portion of the programme of every well-regulated school: with boys it comes under the term drill-training, and with girls it is called preferably calisthenics and deportment; but in the nursery it partakes more of the nature of a romp. To quote Sir W. Jenner again: "A child in health rejoices in movements of every kind. It joys to exercise every muscle. Strip a child a few months old, and see how it throws its limbs in every direction. It will raise its head from the place on which it lies, coil itself round, and, grasping a foot with both hands, thrust it into its mouth as far as possible, as though the great object of its existence at that moment was to turn itself inside out."

Such being the case, we must so arrange the dress of the child as not to hinder its exercising the limbs in any way; and, as soon as it is able to run about, all games which necessitate such locomotion should be encouraged, and especially in the open air, when the weather and temperature will admit of it. This is one of the advantages of playmates; for, if a child has no companion of its own age to play with, it becomes less inclined to run about, and

takes less interest in its game, and is inclined to become wayward, discontented, and selfish.

Another point of the greatest importance in the healthy development of children is sleep. Infants require a large share of sound and undisturbed rest. We are all of us more or less creatures of habit, and it is surprising how quickly these habits are formed, even by infants and young children, and it is highly important to train them to early and regular habits in respect of sleep, both during the day and night.

The first few weeks of life are almost entirely occupied by sleep and feeding; but, as the infant grows older, its capacity for sleep decreases. But for the first three or four years they require at least double the quantity of sleep needful for an adult; and, besides the ten or twelve hours at night, it is generally advisable to allow an hour or two for rest in the middle of the day. If a child cannot sleep soundly, we may generally rest assured that there is some important cause, which is, in the majority of cases, removable. Either it is over-fed or badly fed, and has colic, or it is not properly clothed, and is cold and uncomfortable, or the child is suffering in some other way; and, to promote sleep, we must find out such hindrance or discomfort, and not, under any circumstances, resort to soothing syrups or narcotics of any kind. Infants should be put to bed at the same hour every evening,—between six and seven o'clock,—shortly after their bath and evening meal, so that they may have four or five hours' good sleep before the nurse or mother goes to bed. They should not be violently rocked to sleep, as is often done, producing a mild concussion of the nerve centres; neither should they be suddenly awakened from a sound sleep, lest the shock produced should frighten the child. The nervous system of young children is very impressionable, and one cannot

be too careful in preventing, as far as possible, any excitement, which such acts must of necessity cause.

Later on in childhood, health-giving exercise, especially in the open air, will generally act as a powerful hypnotic, the usual sense of weariness and lassitude which physical exercise causes is an excellent sleeping draught, far better than the drowsiness which sometimes supervenes after a full meal, and little ones should never be put to bed immediately after such a meal, but should be kept up for at least an hour afterwards, so as to allow part of it to become digested, for during sleep this process is delayed; consequently, the stomach may become disordered, and the relations between this viscus and the brain be disarranged, and the child become the subject of nightmare, and night screaming, its boon companion.

Young children should never be given composing draughts, or any kind of medicinal soporific, without the doctor's order,—such a practice cannot be too strongly condemned. They are, unfortunately, too often resorted to, because the friends are too lazy, or it may be, incompetent, to find out the real cause of the sleeplessness, and remedy this, instead of using the easier though more dangerous practice of administering some artificial means of promoting rest, thereby making the child the slave of a vicious and mischievous habit.

Change of air is often looked upon as a necessity, even by people who live in the country, and, presumably, are surrounded by very pure air. I do not wish to underrate the value of a change of air from the close and confined atmosphere of a town to that of the country or the seaside, more especially in the treatment or prevention of some of the diathetic diseases previously mentioned. But where the air is pure and plentiful, and the health is good, children rarely need a month or six weeks at the seaside, where

they are cramped into lodgings which are not usually very comfortable or cleanly, and where the food is not as well cooked as at home. I have often known people, who thus go away for the benefit of their children's health, bring them back rather the worse for the change.

There are doubtless many instances where change to the seaside for a few weeks or months is of manifest advantage; but where such change is necessary it is well to consider carefully the locality, and still more important to see that the lodgings are *comme il faut.* As a rule, however, more advantages accrue to town-bred children by change to a good-sized farmhouse in a healthy and pleasant district, where the milk and simple diet so necessary for young children are easily obtainable, for they do not often require the "fresh" sea breezes which are often very cold, and the rapid alterations of morning and evening temperature. There are many other hygienic points of minor importance, which one might mention, as suggestive of precautionary measures for the better management of the health of young children; but I must bring this little manual to a close, and the foregoing pages will sufficiently demonstrate the manifold and extensive scope of the domestic sanitarian. At no period of life are the means to this end more rigorously demanded or more important to be maintained than during the first few years of life. Infants and young children, it will be seen, suffer more acutely, and succumb more rapidly to the influences of bad air, improper feeding, unsuitable clothing and lack of cleanliness than those more advanced in years.

If the hygiene of the nursery is disregarded, we see that not only is the health and happiness of its inmates impaired, but the prospects of future development are blighted, and the evolution of disease receives an impetus, which, if not *arrested* mercifully by death, leads to a life-long existence

of pain and misery. But if, on the other hand, the elements of sanitary comfort and intelligent care are bestowed upon the habitations and management of the young, these cannot do other than bear the first-fruits of happy content and healthy growth, blessings which are impossible to over-estimate, and rewards which more than repay that "labour of love," which is required of all who cherish their off-spring.

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